Town of Agawam
Massachusetts

2004 APR 29 P 9:55

NPDES
Municipal Separated Storm Sewer System
Phase II Stormwater Permit

2004
Annual Report

Due:
May 1, 2004

Submitted:
April 29, 2004

by
Mayor Richard A. Cohen

Town of Agawam

36 Main Street Agawam, Massachusetts 01001-1837

Tel. 413-786-0400 Fax 413-786-9927

U.S. Environmental Protection Agency
Water Technical Unit
P.O. Box 8127
Boston, MA 02114

April 28, 2004

RE: Agawam Massachusetts
NPDES Phase II MS4 Permit
Annual Report 2004

Dear Sir or Madame:

The Town of Agawam is pleased to submit the enclosed Municipal Stormwater Management Program Annual Report for permit year one in order to comply with the NPDES Stormwater MS4 Permit requirements.

The enclosed information includes documentation of year one activities, a self-assessment of compliance with permit conditions, assessment of BMPs, assessment of measurable goals, assessment of progress towards achieving the measurable goals, summary of results of any information that has been collected and analyzed, discussion of activities for the next reporting cycle, discussion of changes in identified BMPs, and reference to any reliance on other entities for achieving measurable goals.

Please feel free to contact me with any questions or comments regarding this submittal.

Sincerely,

Richard A. Cohen,
Mayor

CC: MA D.E.P. - Div. of Watershed Management
John P. Stone, DPW
Georganne Hoyman, Engineering
Debra Dachos, Planning
Dominic Urbinati, Building
Randall White, Board of Health
Henry Kozlowski, Conservation Commission

Town of Agawam

36 Main Street Agawam, Massachusetts 01001-1837

Tel. 413-786-0400 Fax 413-786-9927

Massachusetts Department of Environmental Protection
Division of Watershed Management
627 main St.
Worcester, MA 01608

April 28, 2004

RE: Agawam Massachusetts
NPDES Phase II MS4 Permit
Annual Report 2004

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The Town of Agawam is pleased to submit the enclosed Municipal Stormwater Management Program Annual Report for permit year one in order to comply with the NPDES Stormwater MS4 Permit requirements.

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Town of Agawam

2004 ANNUAL REPORT **PERMIT # MAR 041 001**
NPDES Phase II Small MS4 General Permit **DEP Transmittal # W 050615**

Part 1. General Information

Contact Person: John P. Stone **Title:** Superintendent
Department of Public Works

Telephone Number: 413-786-0400-x225

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: Richard A. Cohen

Name: Richard A. Cohen

Title: Mayor

Date: 4-28-04

Part 2. Introduction

The following is the Town of Agawam Massachusetts Annual Report as required by the EPA NPDES Phase II Small MS4 General Permit Regulations. This report includes a self-assessment review of compliance with the permit conditions, an assessment of the appropriateness of the selected BMPs, an assessment of the progress towards achieving the measurable goals, a summary of results of any information that has been collected and analyzed, a discussion of activities for the next reporting cycle, a discussion of any changes in identified BMPs or measurable goals, and reference to any reliance on another entity for achieving any measurable goal.

RELIANCE ON OTHER ENTITIES

INTER-CONNECTED MS4S - The Town of Agawam has interconnected MS4s within its boundaries as follows: Massachusetts Highway Department controls certain state numbered routes, Massachusetts Department of Environmental Management controls Robinson State Park on the Westfield River, the Springfield Water and Sewer Commission controls the Bondi's Island Regional Treatment Facility on the Connecticut and Westfield Rivers, and the City of Springfield owns and operates the Bondi's Island Landfill on the Westfield River. Each of these facilities have drainage systems which are separate from or interconnect to the Town of Agawam's drainage system but are under control and operation by entities other than the Town of Agawam.

VOLUNTEERS – Several of the permit conditions within the minimum control measure for public participation relies on the interest and participation of volunteers.

SELF-ASSESSMENT

The following is a summary of all activities which exceed the permit requirements and those requirements which have not been completed. The Town of Agawam requests that the following alterations of Minimum Control Best Management Practices (BMPs) permit requirements be adopted as new permit conditions. All Minimum Control BMPs not mentioned here are in compliance with the permit requirements.

BMP 1A – Public Education Display - In addition to the stormwater display in Town Hall, a second display targeting construction companies and developers was posted. Construction site BMP educational materials have been displayed in the DPW offices. The material includes information on construction phase erosion and sediment control BMPs.

BMP 1E – Press Releases – Five environmental education press releases were given to local media, rather than just two, during permit year one.

BMP 2A – Adopt A Road – 2.4 miles of roadway had trash clean-ups during year one. It is proposed for DPW to continue to support volunteer efforts for roadway and stream clean-ups as they become available but to not anticipate 10% of roadways will have clean-ups. The type and amount of trash was not documented. The Town of Agawam requests that this documentation requirement be altered to a discussion of clean-up locations and extents which occur within each permit year.

BMP 2C – Storm Drain Stenciling – No volunteer groups were available to perform catch basin stenciling during permit year one. DPW remains available to support volunteer efforts in the future. The goal of supporting and supervising volunteers to stencil 200 catch basins per year is not feasible due to lack on interest on the public's part. The Town requests that this goal be altered to include DPW's continued support for available volunteer efforts for future catch basin stenciling.

BMP 2D – Watershed Committee - To encourage wider participation and coordination of Stormwater Management activities, the 2004 annual report will be distributed to the Connecticut River Watershed Council, and the Pioneer Valley Planning Commission, in addition to the Westfield River Watershed Council as previously committed to.

BMP 3A – Mapping Stormwater Outfalls – In addition to original permit requirements, the Town of Agawam with its consultant Tighe & Bond have applied for and been granted a State Revolving Funding (SRF) loan for the mapping of the drainage system town-wide. See the project Approval Certificate in Appendix 3A. The Town is currently waiting for the state to release funds so that work can begin. Generally, the scope of the project includes the following components:

Compilation of existing data	Compilation of existing GIS data layers
Update of existing GIS data layers	Field locating of stormwater features
Compilation of stormwater mapping	Records Management of record plans
Hardware and Software Purchase	Training

These activities will begin once funding is available from the State.

BMP 3B – Non-Stormwater Discharge Ordinance – During permit year one all newly approved subdivisions within town which include the creation of a detention pond which outlets to water resources will have additional restrictions which address non-stormwater discharges was incorporated into the deed easement for the detention pond. See Appendix 3B for this deed restriction.

BMP 4A - Construction Runoff Ordinance - The existing regulations were reviewed to determine relevant sections pertaining to erosion and sediment control. Additionally, all new subdivisions are required to include within the construction plan set, a separate sheet showing all construction phase erosion and sediment control measures for the site. Also, the developer is required to submit an informational copy of the project's SWPPP to the DPW as prepared for the NPDES construction phase N.O.I. for EPA. Construction site BMP educational materials have been displayed in the DPW offices. The material includes information on construction phase erosion and sediment control BMPs.

BMP 4B - Construction Plan Review - All construction sites within the jurisdiction of the Rivers Act and the Wetland Protection Act must submit plans to the Conservation Commission for review of proposed erosion and sediment control measures. These sites are inspected and overseen by the Conservation Commission. All new subdivision submittals are required to include construction phase erosion and sediment control measures within the construction plan set. The developers of all new subdivisions are required to submit the project's EPA NOI for construction activities, and give a courtesy copy of the SWPPP to the DPW. DPW works with the Conservation Commission, developers, and property owners to alleviate erosion control problems as they occur.

BMP 6A – Municipal Maintenance Activity Program – The DPW's SPCCC plan was updated. The originally proposed BMP was found to be impractical for implementation. The Town requests that the following activities replace those originally proposed. Permit year two – The DPW will evaluate the BMPs shown on the EPA's website for Pollution Prevention / Good Housekeeping for Municipal Operations to determine which BMPs are significant to the Town of Agawam. Those which are determined to be pertinent will be selected for further evaluation by the appropriate personnel responsible for those operations. This BMP will be implemented as far as practicable given that several key operational positions will be vacated due to retirements within permit year 2. Based on the evaluation of the EPA fact sheets, existing programs will be modified as funding and staff will allow.

BMP 6B – Municipal Employee Training - Given that a new program was not developed and adopted during permit year one, initial training will be accomplished as appropriate. Once the new Municipal Maintenance Activity Program (BMP 6A) is accomplished DPW employees will be informed of new good housekeeping policies and procedures. DPW employees received Hazardous Materials Awareness training, which will increase their knowledge of appropriate action if a hazardous materials incident occurs within the town.

BMP 6C - Catch Basin Cleaning Program - The Town of Agawam has created a prioritized program for catch basin cleaning, but was unable to perform maintenance due to lack of funds. The Town of Agawam will continue to utilize funds, if available, for annual cleaning of catch basins within priority areas.

BMP 6F - Stormwater Pollution Prevention Plan / MSGP – The EPA's MSGP program has been delayed. The Town of Agawam's DPW yard operations have not moved to their new

facility as originally scheduled for permit year one. Once the new DPW facility is available, DPW yard operations at the new site and will comply with MSGP requirements at that time.

BMP Schedule – During the implementation of permit year activities, it was determined that the submitted schedule required alteration due to the new permit time frame. The original schedule for the permit began in March. This was changed to May due to EPA's delay in issuing the final general permit. Thus the enclosed schedule reflects a two-month shift in the implementation. All activities originally proposed within a particular permit year are still scheduled within the same permit year.

SUMMARY - The Town of Agawam has made its best effort to comply with all of the permit requirements for year one. The previous discussion describes several requirements for which the Town requests an alteration. We feel that the items which were done in excess of the year one requirement compensate for those items for which a requirement adjustment is requested.

PART 3. STORMWATER MANAGEMENT PROGRAM

MINIMUM CONTROL BEST MANAGEMENT PRACTICES

1A Educational Displays

The Town will post one educational display per year in the Municipal Building. Displays will contain information on stormwater related issues and may be obtained from an applicable governmental or other public agency, purchased from a distributor, or created by students working on projects under BMP #1B. The Department of Public Works (DPW) will have responsibility for this BMP, which will be utilized in Years 1 through 5.

Year 1 Activities

As part of National Stormwater Month, a display was posted as noted above, during the month of April 2004. The focus of the display was on water resources within Agawam and information was available on what home owners could do to improve stormwater runoff water quality. See Appendix 1A for display contents.

In addition to the display in Town Hall about stormwater a second display targeting construction companies and developers was implemented. Construction site BMP educational materials have been displayed in the DPW offices. The material includes information on construction phase erosion and sediment control BMPs.

Best Management Practice Assessment / Proposed Changes

This BMP was proposed to take place in the spring of 2003; it was performed in April of 2004 due to the change in the permitting deadline in 2003 by DEP and EPA. This BMP was performed within the first permit year. This management practice was completed and effective. In the future, the Town of Agawam proposes to display stormwater related materials in April or May since many outdoor maintenance activities by homeowners start during this period.

Possible Future Activities

In year 2, the DPW will create an educational display, based on the EPA "Solution to Pollution" Guide, in the main lobby of the Municipal Building regarding Healthy Household Habits for Clean Water. Residents will receive healthy household habits to keep common pollutants off the ground and out of stormwater. See Appendix 1A

1B Classroom Education

The Town will continue the science curriculum and encourage stormwater educational topics to be included in the curriculum for Grades 4 through 8. At minimum, the curriculum will include one presentation given to the students about stormwater related topics. The School Department will be responsible for this BMP, which will be implemented in Years 1 through 5.

Year 1 Activities

To increase recycling awareness and reduce the number of pollutants and their impacts on storm water, the Agawam DPW has sponsored a number of events to help the Agawam Teachers support the Environmental, Science and Mathematic Curriculum currently in place within the public school system. The activities sponsored during the months of March and April 04 was as follows:

- *Assembly Presentations*
  Grades 3 & 4
  Recycling and Litter Prevention by Jack Golden of Greenfield, MA
  Students were educated with valuable lessons about waste reduction and recycling. The presentation explored a serious issue of our wasteful habits and how we need to protect our earth from pollutants.

- *Facility Tours*
  Grade 5
  Location: Springfield Materials Recycling Facility and EACO Waste to Energy Plant.
  Students were educated on what happens to their recycling at the SMRF –how the products need to be contaminant free in order to re-create them into new valuable items. At EACO Waste to Energy, the students were educated on what happens to the materials they throw in their trash. What items need to be pulled out and disposed of properly – such as latex paint, oil, recyclables…etc.

- *Clean and Green Coloring Books*
  Grades 1 & 2
  This tool is a simple and age appropriate introduction to composting, recycling and litter prevention.

Best Management Practice Assessment / Proposed Change

The Town of Agawam has completed this BMP and feels all the activities were effective in helping support the public school department in educating the students on reducing the amount of waste disposed of improperly within our town. See Appendix 1B

Possible Future Activities

In an effort to further help the School Department educate students on stormwater quality, the Town of Agawam DPW Solid Waste Coordinator will continue to help coordinate any presentations as staffing and funds allow.

1C Local Cable Access

The Town will post two informational bulletins per year on the local cable access channel. Bulletins will contain information on stormwater related issues and associated community activities. The DPW will have responsibility for this BMP, which will be utilized in Years 1 through 5.

Year 1 Activities

A Hazardous Waste Bulletin was posted in the Spring 03 and Spring 04. Information on the bulletin included which items could be brought to the Household Hazardous Waste Day event. In addition, it listed how to properly dispose of latex paint and used motor oil, in an effort to help prevent illegal dumping of these two common waste products. See Appendix 1C

Best Management Practice Assessment / Proposed Change

No changes proposed to this BMP. The Town of Agawam will continue to post two bulletins on the local cable access channel to better educate the community regarding stormwater related issues.

Possible Future Activities

The DPW will post a Summer 04 bulletin to help educate the community on what they can do to improve stormwater runoff water quality. The bulletin information will reflect the display posted in the Agawam Town Hall Main Lobby. See Appendix 1A.

In the Winter of 04/05, the DPW will post a bulletin with information to residents on stormwater topics. Bulletin will reflect the explanation as given on the MA DEP website. See Appendix 1C.

1D Community Website

The Town will post stormwater educational information on the community website two times per year. The website will include a link to DEP's website and updates annually or as needed. The DPW will be responsible for this BMP, which will be implemented in Year 1 and updated in Years 2 through 5.

Year 1 Activities

A website was created and launched which included general information about stormwater and drainage within Agawam, and links to educational materials on DEP and EPA's websites. See Appendix 1D for text of website.

Town of Agawam Solid Waste regulations are posted on the community website as a reference for residents on Household Hazardous Waste disposal, recycling, and bulk pickup services and requirements.

Best Management Practice Assessment / Proposed Change

This goal has been met. No changes are proposed.

Future Activities

The website will be updated within permit year 2.

1E Newspaper Press Releases

The Town will send out two press releases per year to the local newspaper. Press releases will contain information on stormwater related issues and community activities. The DPW will have responsibility for this, which will be utilized in Years 1 through 5.

Year 1 Activities

The Town of Agawam has submitted a number of Press Releases as listed below.

- *Recycling Information Guidelines*
  Posting guidelines on how to properly dispose of waste, including yard waste, car batteries, motor oil and rechargeable batteries -items that need to be diverted from our stormwater ways. See Appendix 1E.

- *Composting*
  This press release informs residents on how to turn their leaves, kitchen scraps and paper to gold. It also notifies residents of the availability to purchase home compost bins. See Appendix 1E.

- *"Garbage Is My Bag"*
  Information piece regarding the continued efforts of the Agawam DPW to support the public school system in educating their students on proper disposal options. See Appendix 1E.

- *"Charge Up To Recycle"*
  An information article, educating residents on hazards of disposing of rechargeable batteries and disposal options for these items. See Appendix 1E.

- *Household Hazardous Waste Collection*
  A guideline to what items are considered Hazardous Waste and how to properly dispose of them. See Appendix 1C.

Best Management Practice Assessment / Proposed Change

Five press releases were printed in local newspapers, exceeding our BMP commitment. No proposed changes at this time.

Possible Future Activities

The Town of Agawam will continue to send out press releases throughout the year. Future press releases to include information on stormwater pollution and a list of simple things that homeowners can do to prevent stormwater pollution.

1F Informational Pamphlets

The Town will distribute one informational pamphlet or notice per year to every household Town-wide. The pamphlet or notice will likely be included with the mailing of the Consumer Confidence Report on water quality. Pamphlets will contain information on stormwater related issues and may be obtained from an applicable governmental or other public agency, purchased from a distributor, or possibly created by student's project under BMP #1B. The DPW will have responsibility for this BMP, which will be utilized in Years 1, 3, and 5.

Year 1 Activities

The Town of Agawam distributed to each household "Agawam's Aqua Almanac" during the Summer 03 quarter of the year. The Almanac included facts regarding Agawam's Water, a Water Quality Report for 2002 and health information regarding contaminants in drinking water. See appendix 1F.

In addition to the Aqua Almanac, the town distributed a Regulations Sheet to every homeowner during the Winter 03 and Spring 04 quarters of the year. Again, the Regulations Sheet gave residents a guideline to proper disposal options to common waste. See appendix 1F.

Best Management Practice Assessment / Proposed Change

Goal has been met. No activity scheduled for year two. No changes proposed at this time.

Possible Future Activities

Next informational pamphlet to be distributed during year 3.

MINIMUM CONTROL BEST MANAGEMENT PRACTICES

2A Adopt-a-Road

The Town will continue to support neighborhood cleanup days by providing trash-bags and subsequent collection for voluntary roadside cleanups. The program is anticipated to cover 10% of public roads in the Urbanized Area per year. The amount and type of trash collected along each road will be documented. The Department of Public Works (DPW) will be responsible for this BMP, which will be implemented in Years 1 through 5.

Year 1 Activities *One volunteer group conducted a roadside cleanup, during permit year 1. The residents along the entire length of Pine St. Rt. 187 conducted this clean-up of approximately 1.4 miles in length. The clean-up effort was supported by the DPW through providing trash bags and pick-up the filled bags along the road.*

A second roadside clean-up occurred utilizing Hampden County Corrections Department inmates along North Westfield St. from May Hollow to the Westfield Town Line, approximately 1 mile in length. This work was coordinated by Agawam's Beautification Committee. This group is considering expansion of this program to 3 times per year in the future.

One group of residents has been approached through direct mailing about a stream clean-up. DPW has not received a positive response at the time of the annual report submittal.

Best Management Practice Assessment / Proposed Change

Two volunteer clean-ups of 2.4 miles of roadway occurred during permit year one. 10% of the roadways within the urbanized area equates to approximately 12 miles. Given the relatively small population of Agawam (~36,000) compared to the roadway serving the community (127 miles), it is not realistic to anticipate 12 miles of roadway cleanup activities. It is proposed for DPW to continue to support volunteer efforts for roadway and stream clean-ups as they become available. Additionally the BMP includes documentation of the amount and type of trash collected along each roadside. Given that these clean-ups take place over several hours or during the weekends, it is not practical to pay town staff to document a trash pick-up. Thus the Town of Agawam requests that this documentation requirement be altered to a simple discussion of clean-up locations and extents which occur within each permit year.

Possible Future Activities

As staff and funding are available, DPW will continue to support volunteer cleanups.

2B Attitude Surveys

The Town will include a questionnaire with stormwater related questions with the mailing of the water bills. The questionnaire will be used to measure community awareness of stormwater issues and the success of the Public Education and Public Involvement components of the Stormwater Management Plan. The DPW will have responsibility for this BMP, which will be utilized in Years 2 and 5.

Year 1 Activities

No activities are scheduled for year 1 under this BMP.

Best Management Practice Assessment / Proposed Change

No changes proposed

Future Activities

A questionnaire will be mailed to town residents within water billing once during year 2.

2C Storm Drain Stenciling

The Town will support and supervise volunteer groups to stencil catch basins. The DPW will supply guidance regarding the content of the stenciled message, directions on locations, and materials, if necessary donations cannot be otherwise obtained. Stenciled messages may include such phrases as "Do Not Dump" or "Drains to Stream". The Town's goal is to stencil 200 catch basins per year. The DPW will be responsible for this BMP, which will be implemented in Years 1 through 5.

Year 1 Activities

No volunteer groups were available to perform catch basin stenciling during permit year 1. DPW would have supported catch basin stenciling efforts if there were any.

Best Management Practice Assessment / Proposed Change

The goal of supporting and supervising volunteers to stencil 200 catch basins during year one was not accomplished due to lack of volunteer participation.

Possible Future Activities

DPW will continue to be available to support volunteer efforts for catch basin stenciling.

2D Watershed Committee

The Town of Agawam will coordinate stormwater activities with the Westfield River Watershed Association (WRWA) within Year 1 and will participate in Years 2 through 5. The Conservation Commission will be responsible for Agawam's participation in the WRWA.

Year 1 Activities

The Agawam Office of Planning and Community Development has informed the Westfield River Watershed Association of the Town of Agawam's Stormwater Management Program.

Best Management Practice Assessment / Proposed Change

The goal has been met and exceeded by the following. To encourage wider participation and coordination of Stormwater Management activities, the 2004 annual report will also be distributed to the Connecticut River Watershed Council, and the Pioneer Valley Planning Commission.

Future Activities

Annual reports shall be distributed to the above mentioned organizations for permit years 2 through 5. Meetings with appropriate staff will be held on an as needed basis.

Minimum Control Best Management Practices

3A Mapping Stormwater Outfalls

A Stormwater Outfall Map will be developed showing all municipal stormwater outfall pipes greater than 12-inches diameter. Existing information and reports from previous investigations will be compiled in Year 1. Approximately 25% of the outfalls will be field inspected each year for Years 2 through 5. Inspectors will catalogue the size, pipe material and condition of each, the receiving water-body, and visual observation of the discharge and immediate downstream channel. The Department of Public Works (DPW) will be responsible for this BMP.

Year 1 Activities

Some existing mapping is available, see Appendix 3A. This existing mapping is often utilized for stormwater related investigations.

The Town of Agawam with its consultants Tighe & Bond have applied for and been granted a State Revolving Funding (SRF) loan for the mapping of the drainage system town-wide. See the project Approval Certificate in Appendix 3Aii The Town is currently waiting for the state to release the funds so that work can begin. Generally, the scope of the project includes the following:

Compilation of existing data

Compilation of existing GIS data layers

Update of existing GIS data layers

Field locating of stormwater features

Compilation of stormwater mapping

Records Management of record plans

Hardware and Software Purchase

Training

Best Management Practice Assessment / Proposed Change

The permit conditions have been exceeded in that funding has been applied for and awarded to the town for GIS mapping. Continued action on this BMP is based on the Commonwealth of Massachusetts' release of the SRF funds to continue implementation.

Possible Future Activities

Once funding is available, activities will continue. The schedule will be dependent on the securing of the SRF funding.

3B Non-Stormwater Discharge Ordinance

The Town intends to adopt an ordinance or other regulatory mechanism to prohibit non-stormwater discharges into the MS4 system. The Town will evaluate existing regulations in Year 1, prepare a draft ordinance in Year 2, and propose the new ordinance for adoption in Year 3. Pending adoption, the ordinance will be enforced in Years 3 through 5. The DPW will have responsibility for this BMP.

Year 1 Activities

The evaluation of existing regulations occurred during year 1 of the permit. This involved the review of existing Town Code of Agawam for any regulations on the prohibition of the discharge of substances into the drainage system. There are several sections within the Town of Agawam Code regarding the use of public sewers. These sections also regulate discharges of stormwater. These existing regulations constitute partial compliance with the permit requirement for an ordinance, which prohibits non-stormwater discharges. See Appendix 3B for findings.

Additionally, newly approved subdivisions within town, which include the creation of a detention pond which outlets to water resources, will have additional restrictions incorporated into the deed easement for the detention pond. See Appendix 3B for this deed restriction.

Best Management Practice Assessment / Proposed Change

This activity will move forward as scheduled.

Possible Future Activities

A draft ordinance prohibiting non-stormwater discharges will be prepared in year 2.

3C Develop Illicit Discharge Plan

The Town will develop an Illicit Discharge Plan to include procedures for identifying, locating, removing illicit discharges as well as documenting actions and evaluating impacts. The Town will evaluate existing procedures in Year 2. The Town will prepare a draft plan and propose the plan for adoption in Year 3. Pending adoption, the plan will be implemented in Years 3 through 5. The DPW will be responsible for this BMP.

Year 1 Activities

No activities are scheduled until year 2.

Best Management Practice Assessment / Proposed Change *No comment*

Future Activities

The Town will develop an Illicit Discharge Plan during year 2 of the permit.

3D Inform Employees, Businesses, and Public

Municipal employees, businesses and the public will be informed regarding the illicit discharge plan and the non-stormwater ordinance. Elements of the public education program will include publicity for this BMP. The DPW will be responsible for this BMP, which will be implemented in Years 3 through 5.

Year 1 Activities

No activities are scheduled until year 3.

During the review of new subdivisions during permit year 1 the following was completed. Drainage systems within subdivisions consist of typical roadway drainage flowing to a detention pond, which is in an easement on a residential parcel. The description of the easement within the deed includes a prohibition typical residential activities which may contribute non-stormwater discharges into the detention pond, as described in BMP 3B.

Educational materials have been displayed in the DPW offices. The material includes information on construction phase erosion and sediment control BMPs.

Best Management Practice Assessment / Proposed Change *No comment.*

Possible Future Activities *No comment.*

3E Video Inspection

The DPW will contract for the use of a video camera to inspect storm drain pipes as practicable to follow up on illicit discharges discovered during activities under BMP #3B. The DPW will be responsible for this BMP, which will continue for permit Years 3 through 5.

Year 1 Activities *No activities are scheduled for year 1.*

Best Management Practice Assessment / Proposed Change *No Comment*

Possible Future Activities *No Comment*

3F Failing Septic Systems

The Board of Health (BOH) currently keeps records of septic system failures that are used to identify problem areas. The BOH will report failures to the DPW for inclusion in GIS mapping in Year 3. The BOH will be responsible for this BMP, which will continue for Years 1 through 5.

Year 1 Activities

The Board of Health maintains records on all inspections involving septic systems. The BOH have forwarded a list of all failed systems from 2003 to the DPW. See Appendix 3F.

Additionally, the Town through the DPW has submitted a draft report to D.E.P. on possible upgrades to the sanitary sewer system in the major areas of Agawam, which are currently served by septic systems. Tighe and Bond has been hired to conduct the Southwest Area Wastewater Disposal Evaluation. This report includes the following subjects within the executive summary: Examination of need for wastewater disposal improvements in the study area, development of alternatives, evaluation of alternatives, and recommendations.

Best Management Practice Assessment / Proposed Change

This original permit requirement is proceeding as scheduled, integration with GIS mapping in the future schedule will be dependent on release of approved funds by the state.

The permit requirements have been exceeded in that the Town is proactively pursuing major wastewater disposal improvements in the future. See Appendix 3F.

Future Activities

The Town has funding available from surpluses of previous construction bonding for the consultant to address D.E.P.'s comments on the draft evaluation submittal, to prepare and submit and Environmental Notification Form (ENF), and to prepare and submit an Environmental Impact Report (EIR) as required. These activities will proceed as funding, and public commitment to the project continue.

MINIMUM CONTROL BEST MANAGEMENT PRACTICES

4A Construction Runoff Ordinance

The Town intends to adopt a Construction Runoff Ordinance or other regulatory mechanism to require sediment and erosion control at construction projects with over one acre in total disturbance. The Town will evaluate existing regulations (including Zoning, Subdivision, and Wetlands regulations) in Year 1, prepare a draft ordinance in Year 2, and propose the new ordinance for adoption in Year 3. Pending adoption, the ordinance will be enforced in Years 3 through 5. The DPW, Planning Department, and Building Inspector have responsibility for this BMP.

Year 1 Activities

The existing regulations were reviewed to determine relevant sections pertaining to erosion and sediment control. See Appendix 4A for findings.

Additionally, all new subdivisions are required to include within the construction plan set, a separate sheet showing all construction phase erosion and sediment control measures for the site.

Also, the developer is required to submit an informational copy of the project's SWPPP to the DPW as prepared for the NPDES construction phase N.O.I. for EPA.

Construction site BMP educational materials have been displayed in the DPW offices. The material includes information on construction phase erosion and sediment control BMPs.

Best Management Practice Assessment / Proposed Change

This measure will continue as proposed.

Possible Future Activities

Year 2 activities will include the development of a draft erosion and sediment control ordinance for consideration of adoption by the appropriate body.

4B Construction Plan Review

Under the Construction Runoff Ordinance (or other regulatory mechanism), applicants with projects with disturbance over one acre will be required to submit sediment and erosion control plans for Town review and approval. Until a new ordinance is adopted (anticipated in Year 3), the Town will continue to review construction plans in accordance with existing regulations. Pending adoption, plans will be reviewed per the new ordinance in Years 3 through 5. The DPW, Planning Department, and Building Inspector have responsibility for this BMP.

Year 1 Activities

All construction sites within the jurisdiction of the Rivers Act and the Wetland Protection Act must submit plans to the Conservation Commission for review of proposed erosion and sediment control measures. These sites are inspected and overseen by the Conservation Commission.

All new subdivision submittals are required to include construction phase erosion and sediment control measures within the construction plan set.

The developers of all new subdivisions are required to submit the project's EPA NOI for construction activities, and give a courtesy copy of the SWPPP to the DPW.

DPW works with the Conservation Commission, developers, and property owners to alleviate erosion control problems as they occur.

Best Management Practice Assessment / Proposed Change *No Comment.*

Possible Future Activities

Site plans and subdivision proposals will be reviewed for compliance with existing regulations by the DPW, Planning Board and the Conservation Commission. Other future activities will proceed as described in the five year implementation plan.

4C Inspection / Reporting

Under the Construction Runoff Ordinance (or other regulatory mechanism), projects with disturbance over one acre will be required to have regular inspection of sediment and erosion controls and reporting of construction activities. Until a new ordinance is adopted (anticipated in Year 3), the Town will continue to require inspection and reporting in accordance with existing regulations. Pending adoption, construction inspection and reporting will be enforced in Years 3 through 5. The DPW, Planning Department, and Building Inspector have responsibility for this BMP.

Year 1 Activities *No activities are scheduled for year 1.*

DPW and Conservation Commission work together to inspect and enforce the Wetland Protection Act on projects within the appropriate jurisdiction.

Certain projects are currently required to submit inspection reports on erosion and sediment control measures on a periodic basis to the Conservation Commission.

Best Management Practice Assessment / Proposed Change

No change is proposed.

Future Activities

Inspections will occur as needed for relevant existing regulations.

MINIMUM CONTROL BEST MANAGEMENT PRACTICES

5A Post Construction Runoff Ordinance

The Town intends to adopt an ordinance or other regulatory mechanism to address post construction runoff from projects with over one acre in total disturbance. The Town will evaluate existing regulations (including Zoning, Subdivision, and Wetlands regulations) in Year 1, prepare a draft ordinance in Year 2, and propose the new ordinance for adoption in Year 3. Pending adoption, the ordinance will be enforced in Years 3 through 5. The DPW, Planning Department, and Building Inspector have responsibility for this BMP.

Year 1 Activities

The DPW has evaluated existing regulations within the Subdivision section of the Town Code. See Appendix 5A for areas of interest to this BMP. Additionally, the Conservation Commission through the Wetland Protection Act continues to regulate activities within and near wetland resource areas.

Best Management Practice Assessment / Proposed Change

No change is proposed.

Possible Future Activities

The Town will prepare a draft ordinance to address post-construction runoff from projects disturbing over one acre during permit year two.

5B Site Plan Review

Under the Post Construction Runoff Ordinance (or other regulatory mechanism), applicants with projects with disturbance over one acre will be required to submit stormwater control plans for Town review and approval. Until a new ordinance is adopted (anticipated in Year 3), the Town will continue to review new development and redevelopment plans in accordance with existing regulations. Pending adoption, plans will be reviewed per the new ordinance in Years 3 through 5. The DPW, Planning Department, and Building Inspector have responsibility for this BMP.

Year 1 Activities

DPW reviews all site plans for conformance with the Town of Agawam's drainage requirements. The Town of Agawam already imposes some requirements for Site Plan

review to ensure the attenuation of peak runoff discharges from sites over one acre for certain storm events. See Appendix 5B for current site plan and subdivision review requirements.

Best Management Practice Assessment / Proposed Change

No change is proposed.

Possible Future Activities

The Town will proceed with activities as scheduled in the permit implementation.

5C Stormwater System Maintenance Plan

Under the Post Construction Runoff Ordinance (or other regulatory mechanism), projects with disturbance over one acre will be required to include a program outlining enhanced procedures for long term operation and maintenance of stormwater facilities. Until a new ordinance is adopted (anticipated in Year 3), the Town will continue to require stormwater facility operation and maintenance in accordance with existing regulations. Pending adoption, additional operation and maintenance requirements for stormwater facilities to be constructed as part of new development and redevelopment projects will be enforced in Years 3 through 5. The DPW, Planning Department, and Building Inspector have responsibility for this BMP.

Year 1 Activities

No activities are scheduled for permit year one.

Best Management Practice Assessment / Proposed Change

No change is proposed.

Possible Future Activities

The Town will proceed with activities as scheduled in the permit implementation.

MINIMUM CONTROL BEST MANAGEMENT PRACTICES

6A Municipal Maintenance Activity Program

The Town will develop a program to outline procedures associated with maintenance of open spaces and parks, vehicular fleets, Town-related construction activities, roads, and storm sewer system. The Town will evaluate existing municipal procedures, modify any procedures if needed, and prepare the program plan in Year 1. The Town will continue to monitor compliance and revise policies as necessary in Years 2 through 5. The DPW will have the responsibility for this BMP.

Year 1 Activities

A Spill Prevention, Control and Countermeasures (SPCC) Plan has been updated from the original 2001 plan. See Appendix 6A for plan outline.

As the DPW reviewed this proposed BMP for implementation, it was determined that it was not practical to accomplish the development of a written program describing all maintenance procedures associated with open space, parks, vehicle fleets, Town construction activities, roadways, and drainage systems within permit year one. The existing maintenance procedures are not written down, and it would not be productive to future operations to document these procedures. The reduced staffing of the DPW division which could assist stormwater operations personnel with the creation of operations procedures documentation is a significant factor. DPW Engineering has had approximately 30% of positions vacant during a significant portion of permit year one. Another factor is the recent turn-over of the Town Engineer position. DPW is currently requesting the full staffing of the Engineering Division and the creation of a part-time stormwater coordinator position.

Best Management Practice Assessment / Proposed Change

The originally proposed BMP was found to be impractical for implementation. The Town requests that the following activities replace those originally proposed.

Permit year two – The DPW will evaluate the BMPs shown on the EPA's website for Pollution Prevention / Good Housekeeping for Municipal Operations to determine which BMPs are significant to the Town of Agawam. Those which are determined to be pertinent will be selected for further evaluation by the appropriate personnel responsible for those operations. This BMP will be implemented as far as practicable given that several key operational positions will be vacated due to retirements within permit year 2.

Possible Future Activities

Based on the evaluation of the EPA fact sheets, existing programs will be modified as funding and staff will allow.

6B Training of Municipal Employees

Municipal employees performing activities under the new Municipal Maintenance Activity Program (BMP #6A) will be informed of new good housekeeping policies and procedures. This will occur pending adoption of the Program in Year 1. DPW employees will also be informed of the Stormwater Pollution Prevention Plan requirements for the DPW and Transfer Station, as applicable. Initial training will be given in Year 2. An Annual Refresher in the form of a seminar or memorandum will be given each year for Years 3 through 5. The DPW has responsibility for this BMP.

Year 1 Activities *No activities scheduled for implementation during this year.*
DPW operations personnel underwent training on hazardous materials awareness. This training included information on the various hazardous material placarding systems, the personal hazards associated the transportation of various hazardous materials, and discussions on procedures and notifications if DPW personnel discover problems with hazardous materials transportation throughout Town.

Best Management Practice Assessment / Proposed Change

Given that a new program was not developed and adopted during permit year one, initial training will be accomplished as appropriate. Some training did occur on topics are associated with potential impacts to stormwater resources including the hazardous materials awareness training described above.

Future Activities

Once the new Municipal Maintenance Activity Program (BMP 6A) is accomplished DPW employees will be informed of new good housekeeping policies and procedures.

6C Catch Basin Cleaning Program

The Town will develop a program with prioritized areas for catch basins in the urbanized area in Year 1. The Town will continue to monitor compliance and revise policies as necessary in Years 2 through 5. The DPW will have the responsibility for this BMP.

Year 1 Activities

The Town has developed a program of catch basin cleaning for the priority areas. These priority areas are based on the locations in Town, which have significant hills and are thus subject to additional sanding during the winter season. See Appendix 6C for priority areas. The intention of this program is to utilize any unexpended funds from the snow plowing account for catch basin cleaning. Unfortunately due to the amount of snowfall this winter no funds remained after the winter season for wide-scale catch basin cleaning program. Individual locations are cleaned as needed, if street flooding occurs.

Best Management Practice Assessment / Proposed Change

The Town of Agawam has created a prioritized program for catch basin cleaning, but was unable to perform maintenance due to lack of funds.

The Town of Agawam will continue to utilize funds, if available, for annual cleaning of catch basins within priority areas.

Possible Future Activities

The DPW will seek dedicated funds for catch basin cleaning during FY 06.

6D Street Sweeping

The Town will sweep all streets in the urbanized area once each year. The DPW has the responsibility for this BMP, which will be utilized for Years 1 through 5.

Year 1 Activities

During Year 1, the DPW completed street sweeping in the following areas:

- *267.7 lane miles of roadway and municipal building parking lots, which includes all 127 miles of public roadways.*
- *Water break cleanup of soil on Silver Lake Drive, Mill Street, Perry Lane, Lexington and Spencer Street.*
- *Clean up of absorbents after diesel spill on Silver Street.*
- *Mill Street and cleaned catch basins prior to paving operations.*

Best Management Practice Assessment / Proposed Change

The Town of Agawam has successfully completed street cleaning to all streets in the urbanized area, including municipal building parking lots.

Possible Future Activities

The Town of Agawam will continue to provide street cleaning to all proposed areas as needed during the Summer, Fall and Spring quarters of the permit years.

6E Pest Control / Landscaping and Lawn Care

The Town will evaluate the use of toxic chemicals in Year 1 and continue to contract with licensed applicators only in Years 2 through 5. The DPW has the responsibility for this BMP.

Year 1 Activities

The DPW provides maintenance services for Parks, the Golf Course, and Schools. The application of fertilizers and pesticides are under the supervision of licensed pesticide applicator, thus the chemicals are used appropriately and the over- use of chemicals is avoided. The maintenance of the golf course includes the use of organic practices where appropriate.

Best Management Practice Assessment / Proposed Change

DPW will continue to utilize organic alternatives were practicable.

Possible Future Activities

The DPW intends to continue to utilize licensed contractor's for grounds maintenance work.

6F Stormwater Pollution Prevention Plan / MSGP

A Stormwater Pollution Prevention Plan (SWPPP) will be implemented for the DPW facility under the EPA Phase II Stormwater Program Multi-Sector General Permit (MSGP). The DPW has the responsibility of this BMP, which will be utilized for Years 1 through 5.

Year 1 Activities

As of this report date, EPA has delayed the Multi-Sector General Permit (MSGP) program. However, a Spill Prevention Control and Countermeasure Plan (SPCC) Plan has been in-place for the DPW maintenance facility since November 29, 2001. The SPCC Plan was prepared in accordance with the requirements of the U.S. EPA Oil Pollution Prevention Regulations (40 CFR Part 112.7). The Town's SPCC Plan describes oil storage at the facility and specifies appropriate procedures, methods and equipment used to control and document oil spills and to prevent spills from reaching surface waters. In addition, the Plan includes recommendations to upgrade the facility in areas where existing oil spill prevention, control and countermeasures are inadequate. The Town's future MSGP compliance program, specifically a storm water pollution prevention plan, is anticipated to incorporate components of the SPCC Plan. See Appendix 6F for an outline of the SPCC Plan.

The DPW has been working with the Mayor throughout the permit year on a project which includes the purchase, design, and construction of a new DPW yard. Currently, the new facility is under design. It is anticipated that design will be complete in 2004. Construction will begin in 2005. The new facility will be available for occupancy in 2005 or 2006.

Best Management Practice Assessment / Proposed Change

The Town of Agawam requests that this goal be amended to allow for the revised MSGP schedule and the construction schedule of the new DPW facility, which will comply with all MSGP requirements in a cost effective manner.

Future Activities

DPW yard operations will move to the new facility once it is available.

6G Used Oil Recycling

The Town currently collects used oil for proper disposal and recycling. The Town will continue to offer Used Oil Recycling year-round in Years 1 through 5. The DPW has the responsibility for this BMP.

Year 1 Activities

The Town of Agawam has continued to provide the residents of Agawam a local drop off location for waste oil. Residents were notified of the available drop off location on the Town of Agawam Regulations Sheet for Solid Waste Collections – see appendix 6G. These flyers were distributed to all residents in their water bills during the winter 03 quarter of year 1.
3,120 gallons of oil were collected.

Best Management Practice Assessment / Proposed Change

The Town of Agawam has met its obligation to provide the residents with a drop-off location for used motor oil. The town feels it has provided ample notification to residents through flyers and telephone communication regarding the drop off location option. The town will continue to provide this disposal option to the residents.

Possible Future Activities

The Town of Agawam will continue to provide the residents a drop-off location for used motor oil and car batteries at no charge to the residents. The DPW will design a cable access informational bulletin and or press release regarding illegal dumping of oil, the hazards, handling and disposal management options available.

6H Hazardous Waste Collection

The Town will continue its annual Hazardous Waste Collection Day subject to funding. Every fall, the Town publicizes the collection day through newspaper ads and radio and television ads. The DPW will continue to have the responsibility for this BMP, which will be utilized in Years 1 through 5.

Year 1 Activities

The Town of Agawam successfully hosted another annual Household Hazardous Waste collection day in the Spring of 03, diverting the following materials from the waste stream and illegal dumping:

- *1615.68 gallons of Processable Oil Paint*
- *807.84 gallons of Processable Latex paint*
- *330 gallons of Paint Liquids*
- *110 gallons of Paint Sludge*
- *275 gallons of Aerosols*
- *201.96 gallons of Resins and Adhesives*
- *120 gallons of Lab Pack Chemicals*
- *275 gallons of Lab Pack Pesticides*
- *55 gallons of Organic Liquids*
- *250 feet of Fluorescent Bulbs*
- *5 gallons of Mercury*

Best Management Practice Assessment / Proposed Change

Due to available funding, the Town of Agawam has successfully met its goal to provide proper and safe disposal options to the residents for Household Hazardous Waste.

Possible Future Activities

The town will continue to provide proper disposal options to the residents, based on available funding. In addition, the town will research the feasibility various options of household hazardous waste collections with the help of DEP's Western Regional MRIP Coordinator through a DEP technical assistance grant.

MINIMUM CONTROL BEST MANAGEMENT PRACTICES

7A TMDL for the Connecticut River

According to the Massachusetts Year 2002 Integrated List of Waters, Connecticut River is designated as Category 5 "Waters requiring a TMDL". The targeted pollutants are priority organics, pathogens, and suspended solids. Sources of priority organics may include but are not limited to: road surfaces, inadequate fueling areas or practices, illegal dumping. Sources of pathogens may include but are not limited to: pet waste, winter road maintenance materials, illicit sewer discharges, and failing septic systems. Sources of the suspended solids may include but are not limited to: lawn care products, litter, winter road maintenance materials, erosion from construction activities, and illicit sewer discharges. The Stormwater Management Program includes many BMPs to address reduction of contaminants from these sources under all Six Minimum Control categories. The City will implement these BMPs under the responsible department and timeframes as previously described.

Year 1 Activities

All previously described Best Management Practices address the TMDL of the Connecticut River.

Best Management Practice Assessment / Proposed Change

The Connecticut River has many contributing factors to cause the need for the TMDL designation. Agawam along with other community's efforts within Massachusetts will contribute to improvements in this major river's water quality.

Possible Future Activities
The future activities within the Town of Agawam's Stormwater Management Plan will be implemented as funding and other resources will allow.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Watershed Management
BRP WM 08A NPDES Stormwater General Permit Notice of Intent
for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)
F. Storm Water Management Program TIME FRAMES

Transmittal Number W - 050615

Facility ID (if known)

Minimum Control	BMP ID	Description of BMP	Permit Year 1				Permit Year 2				Permit Year 3				Permit Year 4				Permit Year 5				
			Sum '03	Fall '03	Winter '03/04	Spring '04	Sum '04	Fall '04	Winter '04/05	Spring '05	Sum '05	Fall '05	Winter '05/06	Spring '06	Sum '06	Fall '06	Winter '06/07	Spring '07	Sum '07	Fall '07	Winter '07/08	Spring '08	Next Permit
No. 1 - Public Education / Outreach Program	1A	Educational Displays																					
	1B	Classroom Education																					
	1C	Local Cable Access																					
	1D	Community Website																					
	1E	Newspaper press releases																					
	1F	Informational Pamphlet																					
No. 2 - Public Involvement / Participation	2A	Adopt-a-Road																					
	2B	Attitude Surveys																					
	2C	Storm Drain Stenciling																					
	2D	Watershed Committee																					
No. 3 - Illicit Discharge Detection and Elimination	3A	Mapping Stormwater Outfalls																					
	3B	Non-Stormwater Discharge Ordinance																					
	3C	Develop Illicit Discharge Program																					
	3D	Inform Employees, Business, and Public																					
	3E	Video Inspection																					
	3F	Failing Septic Systems																					
No. 4 - Construct. Site Runoff	4A	Construction Runoff Ordinance																					
	4B	Construction Plan review																					
	4C	Inspection / Reporting																					
No. 5 - Post-Construct.	5A	Post Construction Runoff Ordinance																					
	5B	Site Plan Review																					
	5C	Stormwater System Maint. Plans																					
No. 6 - Good Housekeeping	6A	Municipal Maint. Activity Program																					
	6B	Training of Municipal Employees																					
	6C	Catch Basin Cleaning Program																					
	6D	Street Sweeping																					
	6E	Pest Control / Landscaping and Lawn Care																					
	6F	Stormwater Pollution Prev. Plan/MSGP																					
	6G	Used Oil Recycling																					
	6H	Hazardous Waste Collection																					

SUMMER - May June July FALL - Aug Sept Oct WINTER - Nov Dec Jan SPRING - Feb March April

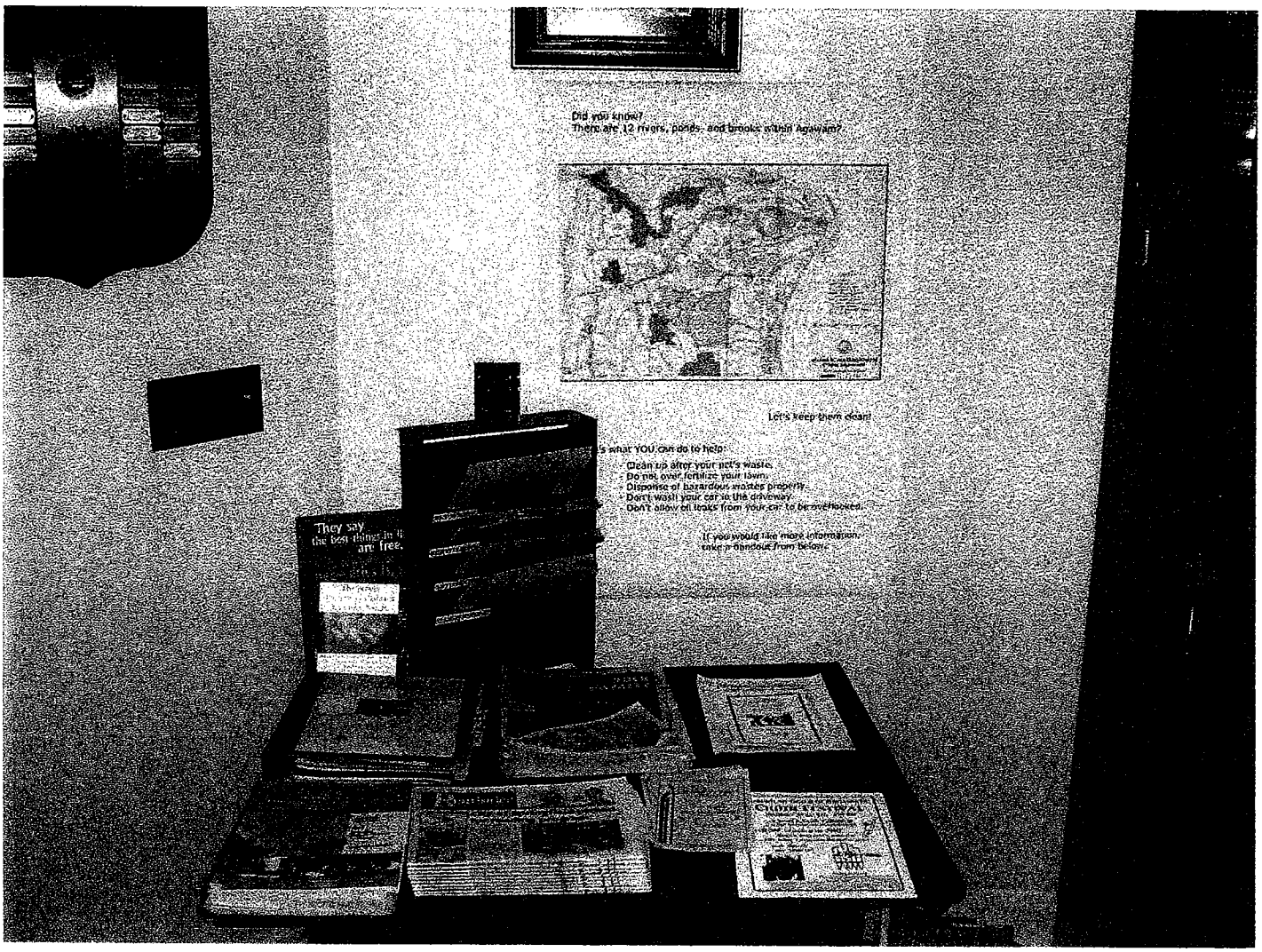
APPENDIX

Sections

Appendix 1A

Year 1

Stormwater Display



TOWN HALL STORMWATER LOBBY DISPLAY

Did You Know?

Agawam has 12 ponds and brooks within the town.

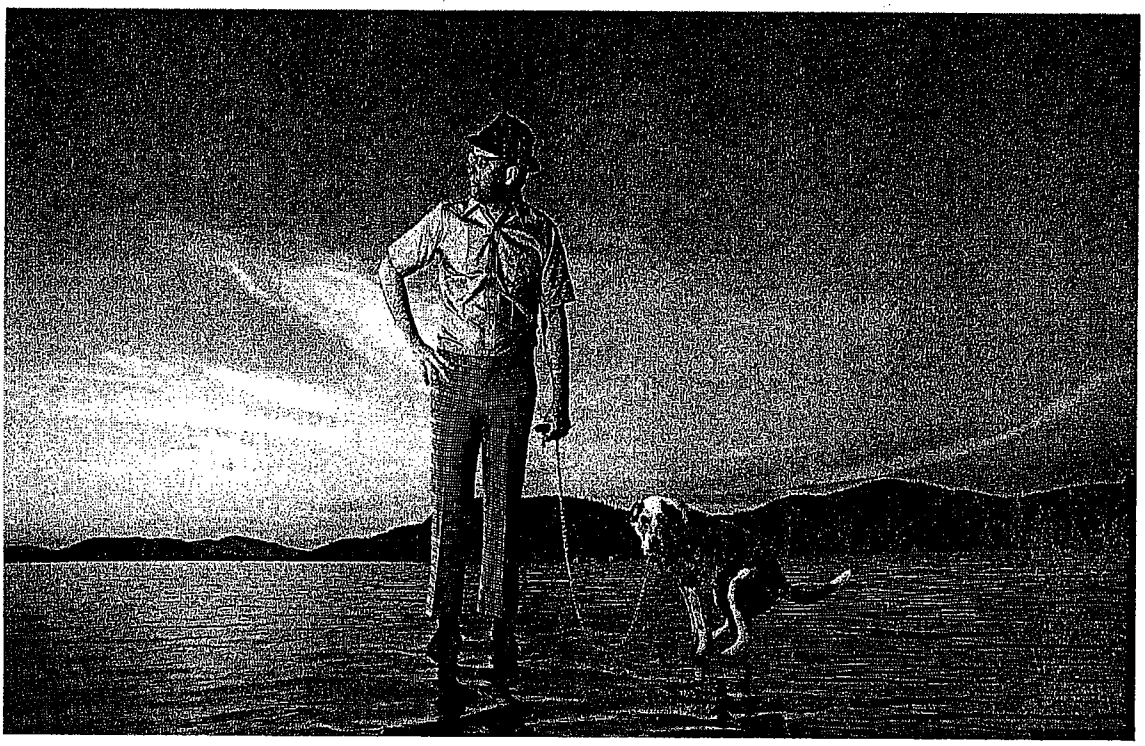
Let's keep them clean!

Here's what YOU can do to help:

- Clean up after your pet's waste.
- Do not over fertilize your lawn.
- Dispose of hazardous wastes properly.
- Don't wash your car in the driveway.
- Don't allow oil leaks from your car to be overlooked.

If you would like more information, take a handout from below.

When your pet goes on the lawn
Remember
it doesn't *just* go on the lawn.



When our pets leave those little surprises, rain can wash pet waste and bacteria into our storm drains that can pollute our waterways. So what to do? Simple! Dispose of it properly. Then that little surprise gets treated like it should.

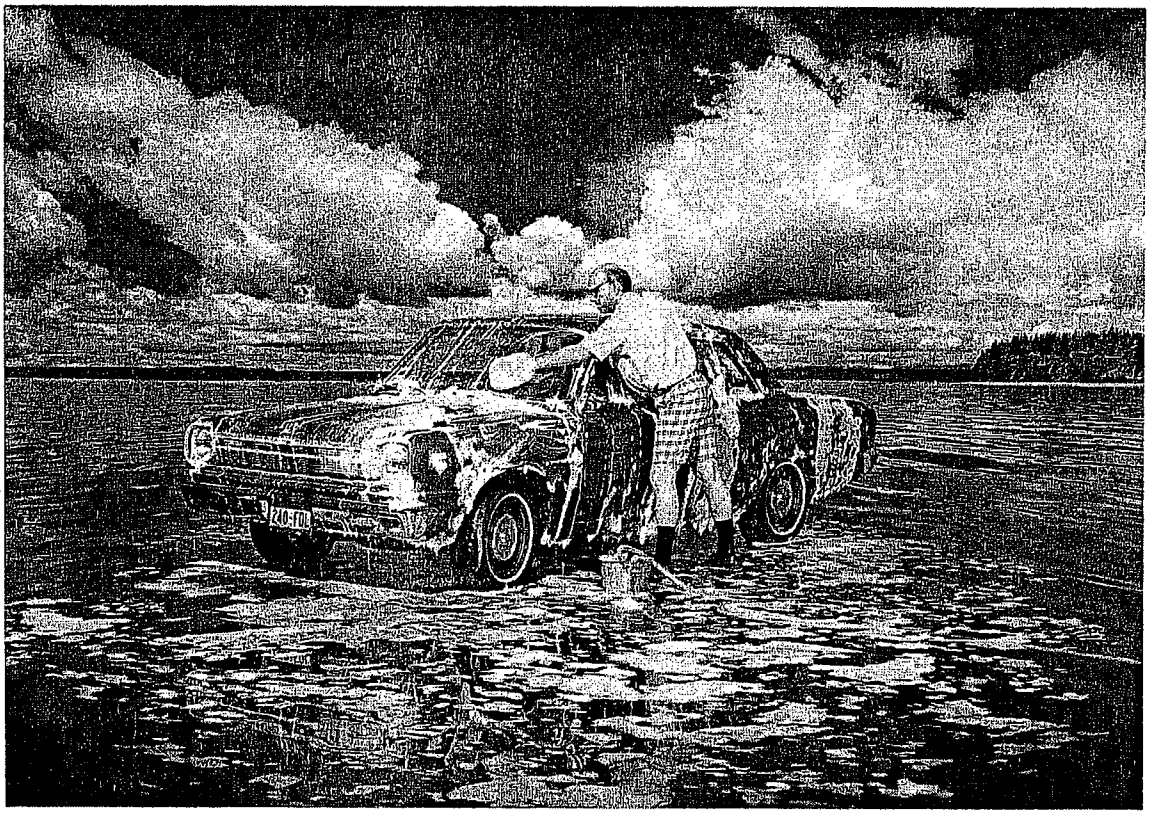
The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

When you fertilize the lawn, *Remember* you're not *just* fertilizing the lawn.

It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

When you wash your car in the driveway,
Remember
you're not *just* washing your car in the driveway.



All the soap, scum, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

When your car leaks oil on the street, ***Remember*** it's not *just* leaking oil on the street.

Leaking oil goes from car to street. Then it gets washed from the street into the storm drain and into our lakes, rivers, and streams. Now imagine the number of cars in the area and you can imagine the amount of oil that finds its way from leaky gaskets into our water. So please, fix oil leaks.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

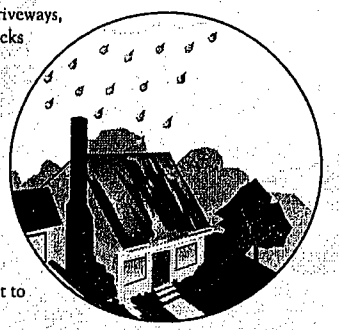
Appendix 1A

Year 2

Possible Future Activities

Stormwater Display

As stormwater flows over driveways, lawns, and sidewalks, it picks up debris, chemicals, dirt, and other pollutants. Stormwater can flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water. Polluted runoff is the nation's greatest threat to clean water.

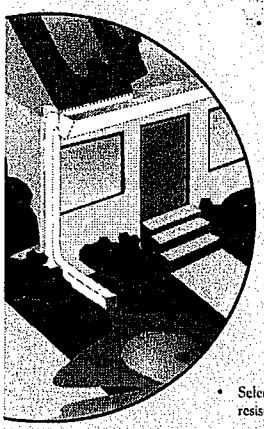


By practicing healthy household habits, homeowners can keep common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of stormwater. Adopt these healthy household habits and help protect lakes, streams, rivers, wetlands, and coastal waters. Remember to share the habits with your neighbors!

Healthy Household Habits for Clean Water

Vehicle and Garage

- Use a commercial car wash or wash your car on a lawn or other unpaved surface to minimize the amount of dirty, soapy water flowing into the storm drain and eventually into your local waterbody.

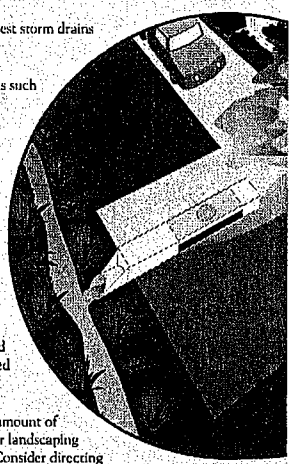


- Check your car, boat, motorcycle, and other machinery and equipment for leaks and spills. Make repairs as soon as possible. Clean up spilled fluids with an absorbent material like kitty litter or sand, and don't rinse the spills into a nearby storm drain. Remember to properly dispose of the absorbent material.
- Recycle used oil and other automotive fluids at participating service stations. Don't dump these chemicals down the storm drain or dispose of them in your trash.

Lawn and Garden

- Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Avoid application if the forecast calls for rain; otherwise, chemicals will be washed into your local stream.
- Select native plants and grasses that are drought- and pest-resistant. Native plants require less water, fertilizer, and pesticides.
- Sweep up yard debris, rather than hosing down areas. Compost or recycle yard waste when possible.
- Don't overwater your lawn. Water during the cool times of the day, and don't let water run off into the storm drain.
- Cover piles of dirt and mulch being used in landscaping projects to prevent these pollutants from blowing or washing off your yard and into local waterbodies. Vegetate bare spots in your yard to prevent soil erosion.

Home Repair and Improvement



- Before beginning an outdoor project, locate the nearest storm drains and protect them from debris and other materials.
- Sweep up and properly dispose of construction debris such as concrete and mortar.
- Use hazardous substances like paints, solvents, and cleaners in the smallest amounts possible, and follow the directions on the label. Clean up spills immediately, and dispose of the waste safely. Store substances properly to avoid leaks and spills.
- Purchase and use nontoxic, biodegradable, recycled, and recyclable products whenever possible.
- Clean paint brushes in a sink, not outdoors. Filter and reuse paint thinner when using oil-based paints. Properly dispose of excess paints through a household hazardous waste collection program, or donate unused paint to local organizations.
- Reduce the amount of paved area and increase the amount of vegetated area in your yard. Use native plants in your landscaping to reduce the need for watering during dry periods. Consider directing downspouts away from paved surfaces onto lawns and other measures to increase infiltration and reduce polluted runoff.

Pet Care

- When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.

Swimming Pool and Spa

- Drain your swimming pool only when a test kit does not detect chlorine levels.
- Whenever possible, drain your pool or spa into the sanitary sewer system.
- Properly store pool and spa chemicals to prevent leaks and spills, preferably in a covered area to avoid exposure to stormwater.

Septic System Use and Maintenance

- Have your septic system inspected by a professional at least every 3 years, and have the septic tank pumped as necessary (usually every 3 to 5 years).
- Care for the septic system drainfield by not driving or parking vehicles on it. Plant only grass over and near the drainfield to avoid damage from roots.
- Flush responsibly. Flushing household chemicals like paint, pesticides, oil, and antifreeze can destroy the biological treatment taking place in the system. Other items, such as diapers, paper towels, and cat litter, can clog the septic system and potentially damage components.

Storm drains connect to waterbodies!

Internet Address (URL) • HTTP://www.epa.gov
Recycled/Recyclable • Printed With Vegetable Oil Based Inks on 100% Postconsumer, Process Chlorine Free Recycled Paper

EPA 833-B-03-002
January 2003

Remember: Only rain down the drain!

For more information, visit
www.epa.gov/npdes/stormwater
or
www.epa.gov/nps

Make your home

The

SOLUTION TO STORMWATER POLLUTION!

A homeowner's guide to healthy habits for clean water

EPA United States Environmental Protection Agency

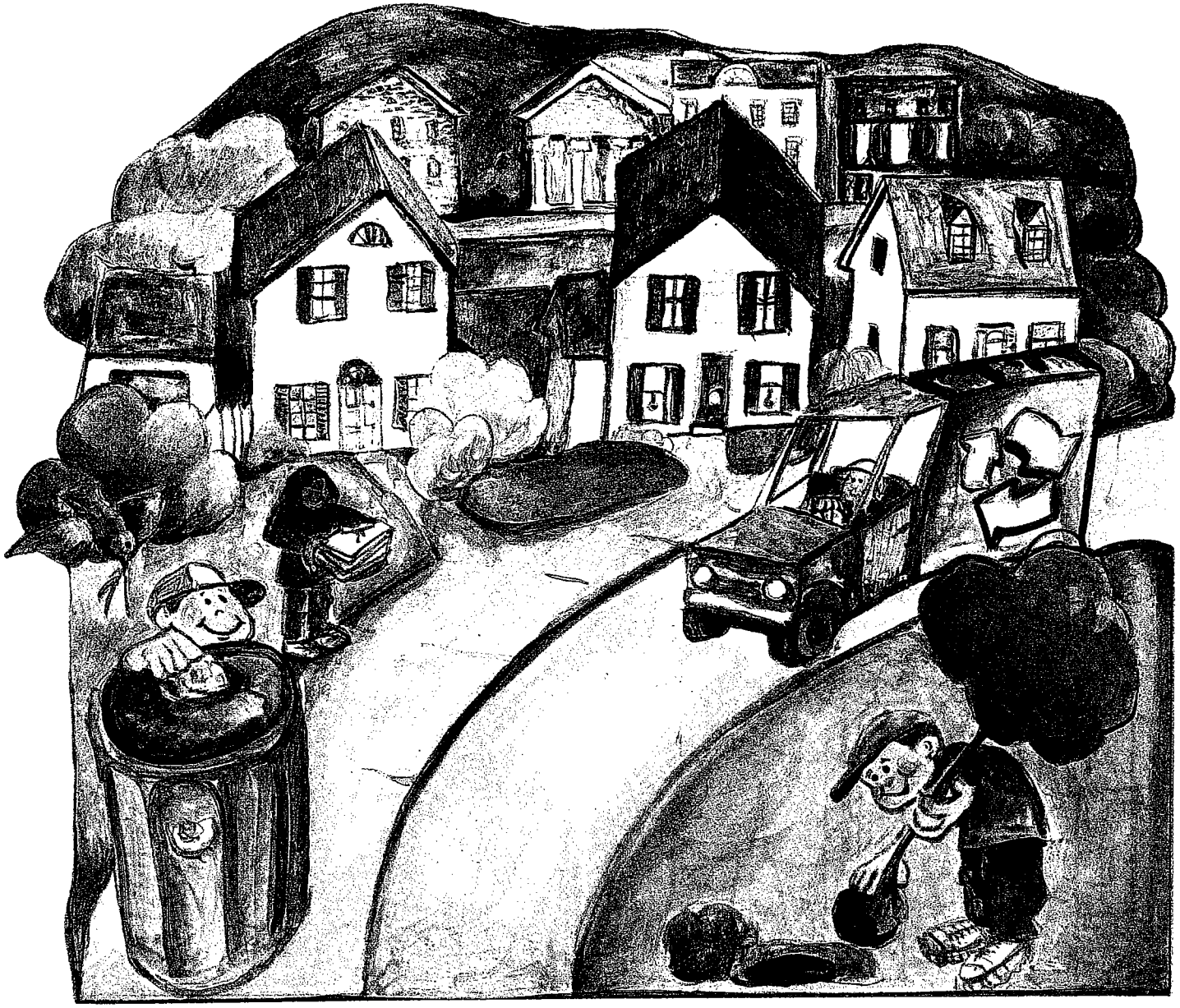
For Immediate Release

Agawam DPW sponsors a hit presentation
"Garbage Is My Bag!"
to area Elementary Schools

Agawam – In an effort to increase recycling awareness and participation within the Agawam Public School System, the Agawam Department of Public Works (DPW) Recycling Program will be sponsoring valuable recycling events at the local Elementary Schools. The town has been awarded funding from the Springfield Materials Recycling Facility Mini-grant fund. The goal of the mini grants is to fund local projects that increase recycling awareness. The DPW has again chose to hire Jack Golden from Greenfield, MA to present his hit assembly presentation, "Garbage Is My Bag!". On March 16th and April 8th, Jack Golden will be providing 45-minute assembly presentations at each of the 4 elementary schools. The 3rd and/or 4th grade students will be entertained with his presentation while learning valuable lessons about solid waste reduction and recycling. Using a fast paced, age appropriate manner, with a blend of mime, comedy, song, circus skills and dramatic story, Jack Golden will explore a serious issue of our wasteful habits with the students. The presentation is provided in a hilarious yet professional manner, supporting the Massachusetts Curriculum Frameworks as well as Agawam's local solid waste program.

This Coloring Book Can Make Your Town

Clean & Green



IT'S YOUR FUTURE

Reduce, Reuse, & Recycle

A clean and green
CHECKLIST

How many of these things are you doing? How many can you do?

- ☐ Save water when you brush your teeth. Wet your toothbrush, then turn off the water while you brush and turn the water on again only to rinse out your mouth and the toothbrush.
- ☐ Recycle your newpapers. If everyone in America recycled their newspapers we'd save 250 million trees every year.
- ☐ Hold on to your balloons. If you let them float away they can end up somewhere animals can swallow them and be harmed.
- ☐ Next time you go to the beach or an outing, take along a trash bag and spend a few minutes picking up litter.
- ☐ Ask your parents to use rechargeable batteries in your toys that run on batteries.
- ☐ Remember to close the refrigerator door as soon as you finish using it.
- ☐ Remember to turn off the lights when you leave a room even if you're gone just a few minutes.
- ☐ When you're going somewhere– ride your bike or walk instead of driving.
- ☐ Dress for the weather. When it's warm, dress appropriately. When it's cold, wear layers of clothing. This will help you to cut down on air conditioning in the summer and heating in the winter and save a lot of energy.
- ☐ Recycle your aluminum cans– you can run a TV for about 3 hours on the energy it takes to produce one aluminum can.
- ☐ Plant trees. If every person in America planted just one tree, there would be 250 million of them cleaning the air and making the earth a greener and happier place to live.
- ☐ Be extra careful when you throw away the plastic six pack rings that hold your soda cans. Animals often get hurt by six pack rings when they wind up in the water. Always cut up used six pack rings and dispose of them properly.
- ☐ Check your house for hidden water leaks. Look at the faucets and the shower heads to see if they are leaking water. If so, tell your parents.
- ☐ Buy tuna that is caught without harming dolphins. Many companies now advertise "dolphin-safe" tuna.
- ☐ Ask your parents about composting some of your garbage for use in your gardens later.
- ☐ Have your mother pack your school lunch in a reusable container.
- ☐ Use less paper by writing on both sides.
- ☐ Ask your parents to bring home used paper from the office that you can use for writing or drawing on the blank side.

Help your parents sort the items for recycling. Recycling cuts down energy use and the use of our precious natural resources.

PRINTED ON RECYCLED PAPER

Appendix 1C

Year 1

Local Cable Access Bulletins

TOWN of AGAWAM
HOUSEHOLD HAZARDOUS WASTE COLLECTION DAY

SATURDAY, JULY 17, 2004
9:00 AM - 12:00 NOON- **BY APPOINTMENT ONLY**

LOCATION: AGAWAM HIGH SCHOOL PARKING LOT, COOPER ST.

PROOF OF AGAWAM RESIDENCY REQUIRED
NO COMMERCIAL BUSINESSES

Each household will be limited to a quantity of waste equal to 25 gallons liquid or 25 pounds solid.

WHAT DO I BRING??

FROM THE HOUSE	FROM THE GARAGE	FROM THE WORKBENCH	FROM THE YARD
Rubber Cement	Gasoline\Kerosene	Oil Paints	Insecticides\Fungicides
Photo Chemicals	Antifreeze	Stains\Varnishes	Chemical Fertilizers
Furniture Polish	Engine De-greaser	Wood Preservative	Weed Killers
Oven Cleaner	Car Wax\Polish	Paint Stripper\Thinner	Flea Control Products
Drain\Toilet Cleaners	Driveway Sealers	Aerosol Cans	No-Pest Strips
Rug\Upholstery Cleaner	Roofing Tar	Adhesives	Pool Chemicals
Flourescent Light Bulbs			

** Propane Tanks may be dropped off for a $12 per tank disposal fee. **

WHAT NOT TO BRING!!

Empty Containers - **DO NOT BRING EMPTY PAINT CANS** - Empty paint cans can be thrown in your trash.
Latex Paint - Dry paint out by adding kitty litter. Leave dried out- opened cans near trash container on regular pick up day.
Commercially Generated Wastes
Radioactive Wastes\Smoke Detectors
Biological Wastes
Explosives\Ammunition
Prescription Medicine\Syringes

MOTOR OIL - CAN BE BROUGHT TO THE DPW GARAGE, 1347 MAIN ST, M -F, 8:00 AM - 3:00 PM

Please call the DPW at 786-0400 to schedule your appointment

Appendix 1C

Year 2

Possible Future

Local Cable Access Bulletin

stormwater

About Stormwater*

* The Massachusetts Department of Environmental Protection (DEP) spells stormwater as one word. The U.S. Environmental Protection Agency (EPA) spells storm water as two words. On this DEP website, "stormwater" is one word unless we are directly quoting an EPA document or program title. If you are searching for information it is wise to search using both spellings.

Rain or snow that falls either soaks into the ground to become groundwater, evaporates, or flows off over the land surface. The overland flow is called runoff or stormwater and is the primary water source for vernal pools, wetlands, streams, rivers, lakes, and water-supply reservoirs. (For an illustration of the water cycle, see http://ga.water.usgs.gov/edu/watercyclegraphic.html.)

Stormwater washes along or dissolves some of the materials in its path. Vegetative surfaces slow the flow, filter out sediments, and can break down or trap pollutants in the root zone. In contrast, buildings, roads, parking areas, and exposed bedrock increase the volume and speed of stormwater runoff since none can soak in and the hard surfaces present little resistance to flow. To prevent flooding and protect property in developed areas, stormwater drainage systems collect stormwater runoff and carry it away from roadways and structures to a discharge point. Most discharges are into natural waters. Stormwater drainage systems consist of curbs, gutters, storm drains, channels, ditches, pipes, and culverts and do not treat the stormwater.

Stormwater becomes a transportation system for pollutants. Soil that erodes from a construction site, cigarette butts and other litter from parking lots, antifreeze and oil dripped from cars, fertilizers and pesticides from turf management, and grit and salt left from de-icing operations on roadways can be deposited untreated into our waterways. Water can contain and transport sediments, metals (copper, cadmium, chromium, lead, zinc), nutrients (nitrates, phosphates, ammonia), salt, petroleum products and coliform bacteria among other materials. This is why stormwater is such a significant contributor to water pollution.

In Massachusetts, polluted stormwater runoff and discharges in urbanized areas cause serious water-quality problems. Polluted runoffs to waterbodies

have affected aquatic plant and animal life in streams and lakes, closed shellfish beds, reduced recreational activities such as boating and swimming, and increased existing flooding conditions caused by natural events. For more information, see the Massachusetts Emergency Management Agency website.

See current stormwater permitting in Massachusetts.

Appendix 1D

Year 1

Community Website Outline

Appendix 1D

The following is the text found in the Town of Agawam's website posting on Stormwater

Storm Water in Agawam

Agawam is located at the intersection of the Westfield and Connecticut Rivers just north of the Connecticut state line. The following are the ponds, streams, rivers and other wetland resources located within Agawam:

Connecticut River
Westfield River
Threemile Brook
Fourmile Brook
Philo Brook
Westfield Brook
Tarkill Brook
Worthington Brook
Still Brook
White Brook
Silver Lake
Leonard Pond
Harts Pond
Other isolated brooks and wetlands

The DPW works to maintain existing and control additions to the public drainage system found within public roads throughout town. Many of the small streams, brooks and wetlands, which are a large portion of the drainage system within Agawam, can be found on private land. Property owners should be aware that everyday activities on their land can impact the drainage system and the water quality of our lakes, streams, and major rivers.

For interesting facts and information on storm water, check out the web page by the Massachusetts Department of Environmental Protection.

http://www.mass.gov/dep/brp/stormwtr/stormhom.htm

Go to the following web page for information about storm water from the E.P.A.

http://cfpub.epa.gov/npdes/stormwatermonth.cfm

Webpages with information you can use at home.
Car washing http://www.mass.gov/dep/brp/wm/files/carswash.pdf
Lawn Fertilizing http://www.mass.gov/dep/brp/wm/files/fertiliz.pdf

Landscaping	http://www.mass.gov/dep/brp/wm/files/lawn.pdf
Car Care	http://www.mass.gov/dep/brp/wm/files/oilspill.pdf
Pet Wastes	http://www.mass.gov/dep/brp/wm/files/petwaste.pdf

Call the DPW at 786-0400 x 275 with questions about drainage in the streets. Call the Conservation Commission at 786-0400 x 245 with questions about wetland resources.

Let's work together to keep our ponds and streams clean.

Appendix 1E

Year 1

Newspaper Press Releases

2002 – 2003 Recycling Information for Agawam Residents

Curbside recycling should include the following items:

Paper: newspaper / inserts, magazines, catalogs, office paper, junk mail, phone books (remove covers), brown paper bags, corrugated cardboard (flattened, 2'x3' max), paperboard (cereal, cracker boxes).

NO wax, soiled, wet wrapping, or coated plastic paper.
NO pizza boxes, egg cartons or wrapping paper.
NO Styrofoam.

Mixed paper should be placed in paper bags and set on top of or next to Blue Recycling Bins.

Containers: Glass bottles/jars (clear, green and brown – less than two gallons), aluminum, tin and steel cans, aluminum foil, all plastic containers, milk cartons and juice boxes.

NO broken glass or glass items such as drinking glasses, window glass, Pyrex, ceramics or light bulbs.
No cans containing hazardous materials.
NO unmarked containers or motor oil containers.
NO plastic bags.

Be sure to rinse clean all containers and place in Blue Recycling Bins.

Scheduled and/or seasonal collection:

White Goods, Bulk Items, Household Furniture and Electronics – by appointment only! Call BFI at 592-9411

Yard Waste(leaves, grass and other easily raked materials) – collection days as scheduled. *** Materials must be placed in 30 gallon, 2 ply Kraft Paper Bags to be collected. ***
Branches: 1"-3" diameter x 3 feet long. Tie into bundles weighing no more than 50lbs.

Christmas Trees – collected with regular trash in January.

Auto Tires – collected with regular trash pick up. One per pick up. Rims must be removed.

Car Batteries / Motor Oil – Drop off at DPW Garage M-F 8am-3pm

Rechargeable Batteries (clearly marked as Ni-Cd, Ni-Mh, Li-ion, Pb accepted) - Drop off at the Agawam Town Hall front entrance. Look for a clearly marked Rechargeable Battery Drop-off Box. Place each battery in a separate plastic bag available at box.

Recycling Bins, Compost Bins, Recycling Schedules and Guidelines available at the Agawam DPW Office.
For more information, call 786-0400, ext. 286

For Immediate Release
In the Springfield Union News
10/28/03

Compost Bins Turn Leaves to Gold!

Due to the tremendous interest in composting fall leaves, the Agawam DPW has replenished its supply of 24 c.f. "Brave New Compost Bins". In an effort to further stimulate the interest in composting and recycling, while reducing refuse tonnage and disposal costs to the town, the DPW will be offering the compost bins at a discounted price of $22.00 each. To obtain a compost bin, just stop by the Agawam DPW between 8:30am – 4:40pm, Monday through Friday. Act now, supplies are limited!!

The "Brave New Composter" is fully adjustable to best suite your needs. They have a cone shaped floor and cover, which provide air and moisture to the composting material, requiring a minimum of maintenance while producing compost in about 3 months. It is made in Massachusetts from 100% post-consumer recycled plastic.

The compost bins help hold in heat and moisture, keep animals out, and look more attractive than open compost heaps. Leaves will start to turn to compost in the bins in 3 to 6 months. Compost, known as "black gold" to gardeners, replenishes nutrients in the soil, helps retain moisture, makes the soil easy to work, and helps plants resist disease. At the same time, turning your leaves, kitchen scraps and soiled paper to compost can reduce your garbage by as much as 50 percent!

Fall leaves are an important ingredient to a compost pile. Without them, a compost pile may become too wet and create odors. Fall is a great time to start composting because the leaves are abundantly available. During the rest of the year, compostable food scraps and crass clippings can be mixed into the leaves, where they will decompose odorlessly.

Questions about composting can be answered by Tracy DeMaio, Agawam's Recycling Coordinator, by calling 786-0400 ext. 286, or by stopping by the DPW office.

For Immediate Release

Agawam DPW sponsors a hit presentation "Garbage Is My Bag!" to area Elementary Schools

Agawam – In an effort to increase recycling awareness and participation within the Agawam Public School System, the Agawam Department of Public Works (DPW) Recycling Program will be sponsoring valuable recycling events at the local Elementary Schools. The town has been awarded funding from the Springfield Materials Recycling Facility Mini-grant fund. The goal of the mini grants is to fund local projects that increase recycling awareness. The DPW has again chose to hire Jack Golden from Greenfield, MA to present his hit assembly presentation, "Garbage Is My Bag!". Jack Golden will be providing 45-minute assembly presentations at each of the 4 elementary schools. The 3rd and/or 4th grade students will be entertained with his presentation while learning valuable lessons about solid waste reduction and recycling. Using a fast paced, age appropriate manner, with a blend of mime, comedy, song, circus skills and dramatic story, Jack Golden will explore a serious issue of our wasteful habits with the students. The presentation is provided in a hilarious yet professional manner, supporting the Massachusetts Curriculum Frameworks as well as Agawam's local solid waste program.

For Immediate Release – January 9, 2003
Town of Agawam

CHARGE UP TO RECYCLE!

New year, new resolutions...new portable electronic products! Many people don't know that **rechargeable batteries** that power their portable electronics products – including cellular and cordless phones, laptop computers, digital cameras, camcorders, power tools and remote control toys – **can and should be recycled.**

According to the Department of Environmental Protection, rechargeable batteries contain toxic heavy metals such as cadmium, mercury and lead. These heavy metals present no threat to human health or the environment while the battery is being used. However, when thrown away, these batteries can cause harm to human health and the environment if they are discarded with ordinary household or workplace waste.

The Town of Agawam has teamed up with the Rechargeable Battery Recycling Corporation (RBRC) to set up a local, convenient drop-off location for rechargeable batteries. RBRC is a non-profit, public service organization that recycles rechargeable batteries. They are dedicated to educating rechargeable power makers, resellers and users about the benefits and accessibility of rechargeable battery recycling and to implement recycling programs where none exist. RBRC supplies collection boxes and pre-paid postage for the return of rechargeable batteries. Upon RBRC receiving shipments of batteries, they consolidate the batteries, ship them to processing facilities and then recycle the usable parts.

Make a measurable difference in preserving our environment and join the Town of Agawam in their effort to recycle the following rechargeable batteries, removing them from the waste stream.

- Nickel Cadmium (Ni-Dc)
- Nickel Metal Hydride (Ni-Mh)
- Lithium Ion (Li-ion)
- Small Sealed Lead (Pb)*
  *(up to 2 lbs each / 1 kg per battery)

Batteries may be dropped off at the Agawam Town Hall. In the front entrance, look for a clearly marked Rechargeable Battery drop-off box. Place each rechargeable battery in a separate plastic bag – available at drop off box. Remove plastic strip form top of bag, fold down and seal bag. Once the bag has been sealed, deposit into collection box. It's as simple as that!

Questions about Rechargeable Battery Recycling can be answered by Tracy DeMaio, Agawam's Recycling Coordinator, by calling 413-786-0400 ext. 286.

For Immediate Release

Agawam DPW sponsors a hit presentation
"Garbage Is My Bag!"
to area Elementary Schools

Agawam – In an effort to increase recycling awareness and participation within the Agawam Public School System, the Agawam Department of Public Works (DPW) Recycling Program will be sponsoring valuable recycling events at the local Elementary Schools. The town has been awarded funding from the Springfield Materials Recycling Facility Mini-grant fund. The goal of the mini grants is to fund local projects that increase recycling awareness. The DPW has again chose to hire Jack Golden from Greenfield, MA to present his hit assembly presentation, "Garbage Is My Bag!". On March 16th and April 8th, Jack Golden will be providing 45-minute assembly presentations at each of the 4 elementary schools. The 3rd and/or 4th grade students will be entertained with his presentation while learning valuable lessons about solid waste reduction and recycling. Using a fast paced, age appropriate manner, with a blend of mime, comedy, song, circus skills and dramatic story, Jack Golden will explore a serious issue of our wasteful habits with the students. The presentation is provided in a hilarious yet professional manner, supporting the Massachusetts Curriculum Frameworks as well as Agawam's local solid waste program.

Appendix 1F

Year 1

Informational Pamphlets

TOWN OF AGAWAM DEPARTMENT OF PUBLIC WORKS
REGULATIONS FOR SOLID WASTE COLLECTIONS 2004

GENERAL REQUIREMENTS

1. Only one-family through four-family dwellings are eligible for solid waste collection service.

2. All refuse and recyclables to be collected shall be placed at the tree-belt by **7:00 A.M.** of the scheduled collection day, but **no earlier than 24 hours in advance of the collection day**. On days when more than one class of materials are being collected, the various items such as refuse, recyclables, bulky items, yard waste, etc. shall be **placed separate and apart from each other**.

3. **Paper products for recycling** shall be placed in a paper bag and set out on top of, or next to, the blue recycling container.

4. Residents who do not participate and comply with the **mandatory recycling provisions** are subject, after one notice, to fines of up to $50 for each violation. **This will be enforced to reduce disposal costs.**

5. Residents who experience problems with the collection service may telephone the collection contractor, **Browning-Ferris Industries, Inc. at 592-9411** or the Department of Public Works at 786-0400, Ext. 231, 225, 224, or 274.

6. **Refuse collection** will be weekly. The **collection of recyclables** will be bi-weekly throughout the year. The dates for recyclable and other collections are indicated on the collection schedule.

7. Materials placed on the tree-belt in noncompliance with these regulations and the Schedule of Collections must be removed therefrom within **48 hours following a collection day.**

8. **Christmas trees** will be collected with your regular refuse during January. Christmas trees over 7' in length must be cut in half.

REFUSE

1. **All refuse must be in containers**. Allowable containers are: Metal or plastic containers having a maximum capacity of 30 gallons and two handles, one on each side; or plastic bags having a maximum capacity of 7 cubic feet. **No cardboard boxes or paper bags may be used**. Wood or coal ashes must be placed in plastic bags.

2. **Refuse** means the solid wastes generated from the operation of a household including garbage, lumber and wood with no dimension greater than 3 feet and no exposed nails. ***Branches from 1" .4" in diameter and not more than 3 feet in length will be collected if tied in bundles weighing less than 50 pounds.***

   SPECIFICALLY EXCLUDED ARE THE FOLLOWING: YARD WASTES, INCLUDING LEAVES, GRASS CLIPPINGS, HEDGE TRIMMINGS, BRUSH, AND BRANCHES UNDER 1" IN DIAMETER: stumps; trees; tree trunks or parts thereof; automobile bodies and motors or parts thereof; lead acid batteries; metal pipes; demolition waste including insulation, masonry, concrete, bricks, pipe, plaster, sheetrock, asphalt shingles and stone; bulky wastes; BUTTON BATTERIES; RECHARGEABLE BATTERIES; liquid wastes; hazardous wastes; materials to be recycled; and RADIOACTIVE MATERIAL found in smoke detectors, chemotherapy treatment waste or by-product.

3. During the months of May through September, inclusive, garbage shall not be placed loosely in barrels but shall be wrapped in paper or placed in closed bags within the barrel.

4. Containers should not be loaded to such a weight that they cannot be lifted by one person.

5. One RUBBER TIRE without rim may be disposed of per collection.

LEAVES AND YARD WASTES*

1. **Leaves** will be collected separately in the Fall and must be placed in **30-gallon, 2-ply Kraft paper bags ONLY** for such collection. Collection dates are indicated on the collection schedule. "Biodegradable Plastic" bags are not accepted.

2. **Yard waste** collections will be made during the months of May to October inclusive. Collection dates are indicated on the collection schedule. Yard wastes include grass clippings, leaves, weeds, garden material, shrub trimmings and brush or limbs. Yard wastes must be placed in 30-gallon, 2-ply Kraft paper bags to be collected, with the exception of brush or **limbs up to 1" in diameter** which may be tied in bundles not greater than 3 feet in length nor weighing more than 50 lbs.

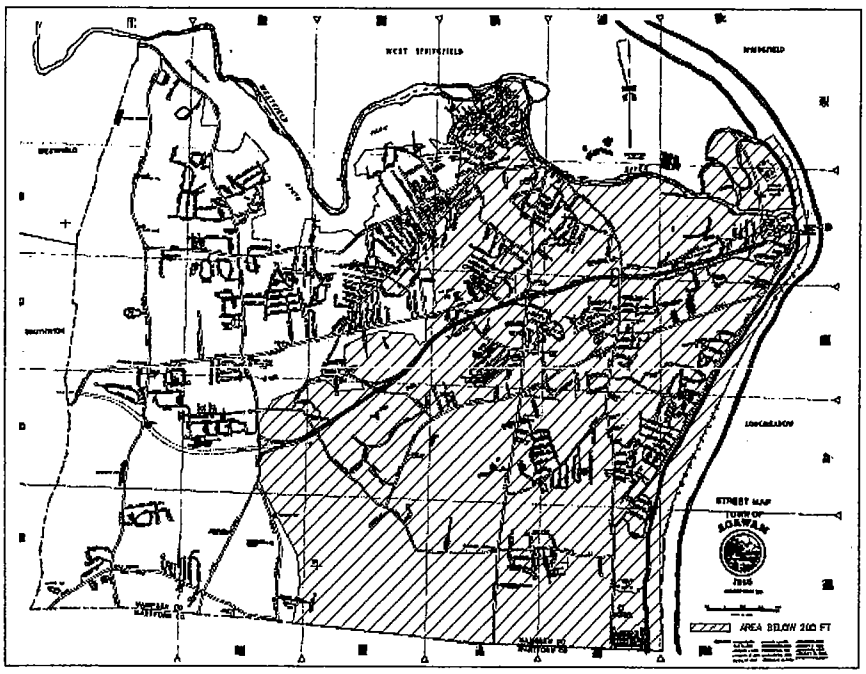
* **NOTE:** **COMPOST BINS** are available for purchase at Town Hall M-F 8:30 am - 4:30 pm

AGAWAM'S AQUA ALMANAC - 2002

The Agawam Department of Public Works is pleased to submit this Water Quality Report (Consumer Confidence Report) for 2002. This is our fifth annual report to you advising of the quality of your tap water and related health issues as well as water system improvements and our future plans.

Water Facts

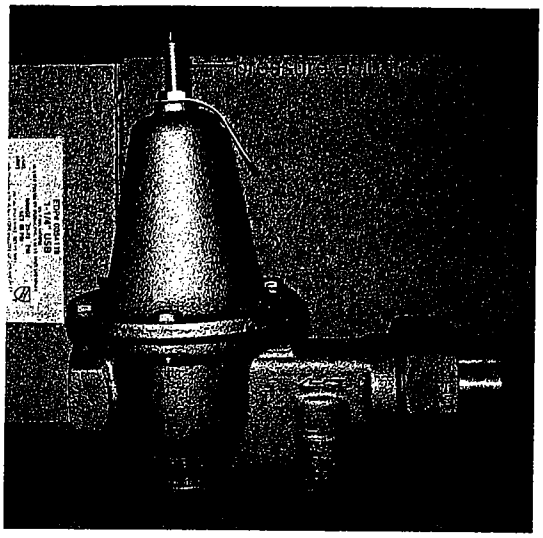
Agawam obtains its water from the Springfield Water and Sewer Commission but operates its own system for the distribution of water within the community. The system includes **8,872** service connections and supplied over **1,600,000,000** gallons of water in 2002 an increase of 200,000,000 gallons from 2001. Nearly 50% of water use in Agawam is residential in nature while industrial use has grown to 27% with the full operation of Berkshire Power and the expansion of Six Flags and the Hood plant. Unaccounted water, which includes water used in fire fighting, street sweeping and flushing as well as leakage, was **7.56%** of total usage in 2002. This loss continues to be well below the 15% limit requiring corrective action. Our aggressive program of replacing troublesome older pipelines prone to breaks and leaks contributes to reducing water loss as does the metering of all permanent and seasonal accounts.



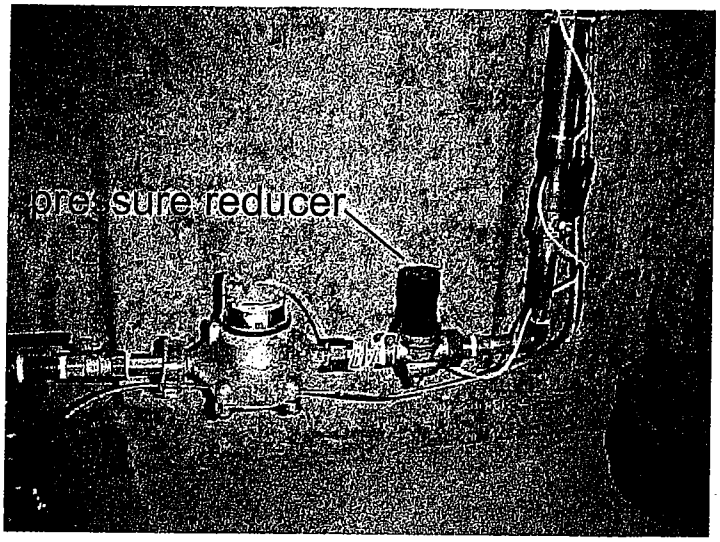
In recent years we have received an increasing number of inquiries concerning water pressure, particularly when new hot water tanks are installed and the new tanks pressure relief valve (set 25 psi lower than on older tanks) discharges water. Water pressure at a customer's home is determined by two elements, the difference in elevation between the home and the water level in the distribution reservoir on Provin Mountain (static pressure) reduced by friction losses related to the quantity of water flowing through the pipelines. Late at night when water usage is low there is minimal friction loss and the pressure in homes approaches the static pressure. The elevation of the water in the Provin Mountain tanks average 400 feet above sea level. In the River Road area of Town homes may be as low as 55 feet above sea level. This results in a static head of water of 345 feet or a static pressure of 150 psi. (each 1' of elevation difference = 0.434 psi) The latest Mass. Plumbing Code requires that an approved pressure reducing valve be installed in the water service pipe of any building to reduce water pressure to 80 psi or lower. In Agawam any home located below 200 feet above sea level may experience periods when the pressure in the home exceeds 80 psi. The shaded area on the included map shows the portion of Town where residents should consider installing pressure reducing valves. Advantages to the installation of a pressure reducing valve include longer life for plumbing fixtures and valves, quieter plumbing operation and reduced water consumption (smaller bills). Please see related pictures on the next page.

Source Water Assessment

The Massachusetts Department of Environmental Protection (DEP) is currently undertaking a Source Water Assessment. Drinking water produced by the Springfield Water and Sewer Commission originates from a surface water supply, the Cobble Mountain Reservoir, located in Western Massachusetts. The Borden Brook Reservoir, a smaller surface water supply that feeds into Cobble Mountain Reservoir , contributes to the system's combined water supply capacity of 25 billion gallons. There is no commercial industry within the watershed boundaries and population density is low. Only limited farming and grazing are practiced in the area. Boating, swimming, hunting, and fishing are forbidden in and around the reservoir areas to further protect the water supply. From the reservoirs the water flows to a treatment plant in Westfield where it is filtered, treated to prevent corrosion of plumbing, and chlorinated. No fluoride is added to the water. The water then flows to storage tanks on Provin Mountain in Agawam and then through large transmission mains passing through our community to Springfield.



A typical Pressure Reducer and its Installation



Water Quality

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agricultural, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to insure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Health Information

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/Aids or other immune disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water to reduce lead content. Additional information is available from the Safe Drinking Water Hotline at 1-800-426-4791.

Analysis of Agawam's Water

Water samples are analyzed daily by state certified laboratories to insure that the water supplied is potable and meets all government standards. The water is monitored at the reservoir, the filter plant, the storage tanks and throughout the distribution system. The data on the next page represents finished water in the distribution system during calendar year 2002.

Contaminant	Major Sources in Drinking Water	Ideal Goal (MCGL)	Maximum Contaminant Level (MCL)	Annual Running Average	Range Detected at Individual Sampling Sites
Organics					
TTHMs (ppb) (Total Trihalomethanes)	By-product of drinking water chlorination	N/A	80 (annual running average)	57	43 - 74
HAA5s (ppb) (Total Haloacetic Acids)	By-product of drinking water chlorination	N/A	60 (annual running average)	44	31—54
Inorganics				**90th Percentile**	**Sampling Sites Exceeding the Action Level**
Copper (ppm)	Corrosion of household plumbing systems	1.3	AL = 1.3	0.13	0 out of 100
Lead (ppb)	Corrosion of household plumbing systems	0	AL = 15.0	9.0	7 out of 100
Contaminant				**Highest Level Detected**	
Nitrate (ppm)	Natural deposits, Stormwater/fertilizer runnoff	10	10	0.12	N/A
Barium (ppm)	Common Mineral in nature	2	2	0.013	N/A
Micobiological				**Highest Single Measurement Detected**	**Samples Meeting the TT Turbidity Limits**
Turbidity (NTU) Rapid Sand Filtration*	Soil run-off	N/A	TT	0.51	98%
Turbidity (NTU) Slow Sand Filtration*	Soil Run-off	N/A	TT	0.22	100%
Disinfectants		**MRDLG**	**MRDL**	**Annual Running Average**	**Range Detected At Individual Sites**
Residual Chlorine (ppm)	Water additive used to control microbes	4.0	4.0	0.14	0.01—0.73

Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

*Rapid Sand Filtration: The turbidity level of the filtered water shall be less than or equal to 0.3 NTU in 95% of the measurements taken each month and shall not exceed a maximum of 1.0 NTU in any single measurement.

*Slow Sand Filtration: The turbidity level of the filtered water shall be less than or equal to 1.0 NTU in 95% of the measurements taken each month and shall not exceed a maximum of 5.0 NTU in any single measurement.

Definitions

• **AL** = Action Level. The concentration of a contaminant which, if exceeded, triggers a treatment or other requirement which a water system must follow. • **MCL** = Maximum Contaminant Level. The highest level of a contaminant in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology. • **MCLG** = Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety. • **MRDL** = Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. • **MRDLG** = Maximum Residual Disinfectant Level Goal. The level of a drinking water disinfectant below which there is no known expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants. • **N/A** = not applicable • **NTU** = Nephelometric Turbidity Units. A numerical value indicating the cloudiness of water.

• **ppb** = parts per billion • **ppm** = parts per million

• **TT** = Treatment Technique. A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Agawam Dept. of Public Works — Water Division (PWS ID# 10050000)

In the Town of Agawam the responsibility for the operation of the public water system lies with the Department of Public Works. The Department whose office is located in the Town Hall at 36 Main Street is under the management of John Stone, Superintendent of Public Works, while John Savioli is the Deputy Superintendent overseeing the water operations. The Department can be reached between the hours of 8:30 A.M. and 4:30 P. M. on regular work days at (413) 786-0400 ext. 274. Emergency water problems at all other times can be reported to the police dispatcher at (413) 786-4767 or 821-0606 who will contact appropriate water service personnel.

Agawam Dept. of Public Works
36 Main Street
Agawam, MA 01001

PRSRT STD
U.S. Postage
PAID
Springfield, MA
Permit No. 1035

While the Department does not have a formalized means of securing public input, questions and concerns may be voiced at any time by calling the staff at the above number. Should you not be satisfied with our response the Mayor's office may be contacted at 786-0400 ext. 200. The Town Council holds regular meetings on the first and third Mondays of each month at the Agawam Middle School. They afford a "citizen speak time" before each meeting at which citizens can voice concerns relative to the water quality or operations. It is suggested that the council clerk be informed in advance of your intention to speak and can be reached at 786-0400 ext. 233 during the morning on weekdays.

We are proud to be able to inform you that we received a Public Water System Award from the Commonwealth of Massachusetts for outstanding performance and achievement in 2002. These awards are made to water systems that score in the top ten percent of public water systems throughout the state.

On Tap for Agawam Water

The Department continues to focus its construction efforts on projects to improve water system capacity, reliability and water quality. Continuing residential growth along North West Street has brought demands to a level that the exist 6" cast iron water line installed early in the past century can no longer meet. The rust and tuberculation in this unlined cast iron pipe has reduced its capacity. The fire flows it can provide are inadequate and the pressure drops during peak usage excessive. We will therefore be installing some 6,600 feet of 8" cement lined ductile iron main over the next two years in order to provide sufficient water for fire protection and to meet the additional demands placed on the system by the planned homes.

The engineering study is nearing completion for possible locations for a water main connecting the south ends of the water mains on Main and Suffield Streets This connection is needed to reduce the chance of service outages at these extremities of Town. Five potential routes were selected for study and are currently under staff review.

The City of Springfield Water and Sewer Commission continues to increase the rate it charges for water as they make capital improvements to the supply, treatment and transmission system which benefit the Town. To date we have been able to absorb the price hike due to the additional revenue derived from increased sales of water, particularly to Berkshire Power and Six Flags. We have been advised that an additional cost of $60.00 per million gallon of water can be anticipated for the security measures implemented since the tragic events of September 11, 2001.

Appendix 3A

Year 1

Existing

Stormwater Mapping

Storm Drainage Study

— REGULATED AREA

○ — OUTFALL/CULVERT PROPOSED/EXISTING

LEGEND

- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- PROPOSED CHAPTER 90 CONSTRUCTION PROJECTS
- DRAINAGE DIVIDE

PLANNING BOARD

SOURCE: TIGHE & BOND, CONSULTING ENGINEERS, HOLYOKE, MASS.

AGAWAM
MASSACHUSETTS

BROWN, DONALD & DONALD, PLANNING SERVICES, INC. SPRING LAKE, PARAMOTOR, CONN.

LEGEND

- = CONTOURS
- = STREAMS & PONDS
- = BUSINESS & INDUSTRIAL AREAS
- = RESIDENTIAL AREAS
- = RECREATIONAL AREAS
- = DRAINAGE DIVIDES
- = EXISTING STORM DRAIN
- = PROPOSED STORM DRAIN
- 12 = PROFILE NUMBERS
- = PROP. CHAP. 90 CONST. PROJECTS
- = OPEN SPACES

NOTES: GROSS AREA SHOWN AS "RESIDENTIAL AREAS" WILL BE REDUCED TO PROVIDE ADDITIONAL COMMERCIAL AREA AND SCHOOL SITES IN EACH NEIGHBORHOOD.

COMMONWEALTH OF MASSACHUSETTS
EDWARD J. DAYON
No 1617
REGISTERED PROFESSIONAL ENGINEER

AGAWAM, MASSACHUSETTS
STORM DRAINAGE

TIGHE & BOND, CONSULTING ENGINEERS
HOLYOKE, MASS.

[redacted] DATE: DECEMBER, 1970

Appendix 3A

Year 1

Stormwater Mapping Project

State Revolving Fund

Project Approval Certificate

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

MITT ROMNEY
Governor

KERRY HEALEY
Lieutenant Governor

ELLEN ROY HERZFELDER
Secretary

ROBERT W. GOLLEDGE, Jr.
Commissioner

1/5/04
cc - Treasurer
- Auditor
- Supt DPW

December 18, 2003

The Honorable Richard A. Cohen, Mayor
Town of Agawam
36 Main Street
Agawam, MA 01001-1837

RE: Town of Agawam
CWSRF - 1784
Project Approval Certificate CW-03-15

Dear Mayor Cohen:

The Division of Municipal Services (DMS) is pleased to inform you that the Project Approval Certificate for the above-referenced project has been signed and forwarded to the Massachusetts Water Pollution Abatement Trust (the "Trust"). The attached copy of your Project Approval Certificate allows you to proceed with your project without loss of potential eligibility in accordance with the provisions of 310 CMR 44.00, subject to the conditions of the certificate.

The Trust will now conduct an analysis of the financial information contained in your application. Loan commitments will then be made to you by the Trust, pending an affirmative vote from the Board of Trustees. The process of finalizing the actual loan agreements will begin once the commitments have been executed.

Please refer to the project schedule contained in Exhibit B of your Project Approval Certificate. The schedule is an important condition of the Department's approval. If your project falls behind schedule, you must request a revision to the schedule from DMS. Any such request must be in writing and be supported with adequate documentation, as there is a pressing demand by other municipalities for these limited funds.

We look forward to working with you. Should any issues or questions arise, particularly as they relate to scheduling, please contact Donald P. St. Marie of this office at (617) 292-5709.

Sincerely,

Steven J. McCurdy
Acting Division Director

Attachment: Project Approval Certificate
cc: Laura Guadagno, MWPAT w/ attachment

OFFICE OF THE MAYOR
AGAWAM, MA
2003 DEC 26 AM 10:42

DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER POLLUTION ABATEMENT STATE REVOLVING FUND PROGRAM

PROJECT APPROVAL CERTIFICATE

A. PROJECT DESCRIPTION

1. Applicant: Town of Agawam
2. Address: Department of Public Works 36 Main Street Agawam MA 01001
3. Project Contact/Telephone: John P. Stone - Telephone: (413) 786-0400
4. Reviewer: Bachu Hirani - Telephone: (617) 292-5791
5. Project Number / Description: CWSRF 1784 / Phase II Stormwate/CSMP

B. APPROVED FUNDING

1. Eligible Costs approved for funding from the Calendar Year 2003 IUP: $314,000.00
2. Financial Assistance: 2% Interest Loan

C. CERTIFICATION

The Department of Environmental Protection (the "Department") hereby determines and certifies to the Massachusetts Water Pollution Abatement Trust (the "Trust") in accordance with M.G.L. c. 21, s.27A, M.G.L. c. 29C, (the "Enabling Act"), and 310 CMR 44.00 (the "Regulations") (with all capitalized terms not otherwise defined herein having the meaning given such terms in the Regulations) as follows:

1. This Project Approval Certificate (the "Certificate") is issued by the Department in accordance with M.G.L. c. 21, s. 27A, the Enabling Act, and the Regulations, for the Water Pollution Abatement Project (the "Project") of the Applicant (the "Applicant") described above. The Department has approved the Project and hereby certifies to the Trust the total Costs of the Project determined by the Department to be eligible for financial assistance pursuant to Sections 6 and 6A of the Enabling Act ("Eligible Costs"). The Department's eligibility determination in Exhibit A complies with the applicable provisions of the Regulations.

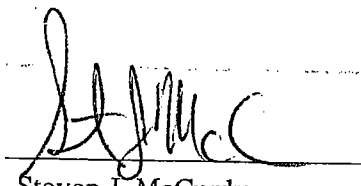
2. This Certificate and the Department's approval of the Project is conditioned upon; (i) the Applicant's compliance with the terms and conditions of the Applicant's certification contained in its Application for financial assistance; (ii) the Applicant's compliance with the Project schedule contained in Exhibit B and the Special Conditions contained in Exhibit C; (iii) the execution and delivery by the Applicant and the Department of a Project Regulatory Agreement for the Project (the "Project Regulatory Agreement") in form and substance satisfactory to the Department; and (iv) the Applicant's compliance with the executed Project Regulatory Agreement, as determined by the Department. The Project Regulatory Agreement shall be incorporated by reference in the Loan Agreement between the Trust and the Applicant, and failure by the Applicant to comply with the Project Regulatory Agreement shall constitute an event of default under the Loan Agreement.

3. The Project is included on the Department's Intended Use Plan Project Listing for the 2003 calendar year.

4. This Certificate is issued by the Department on the basis of information provided by the Applicant in its Application for financial assistance and the representations of the Applicant contained therein. The Applicant has agreed to promptly notify the Department of any material change in the information contained in the Application, which change may be grounds for modification or rescission of this Certificate. This Certificate is further subject to modification or rescission because of any change in law subsequent to the date of this Certificate and prior to the date any financial assistance is provided by the Trust in accordance with this Certificate.

5. The Department has determined that the Applicant has demonstrated adequate technical, financial, and managerial capability.

FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION



Date: 12/18/2003

Steven J. McCurdy
Acting Division Director

Exhibit A

ELIGIBILITY DETERMINATION

ITEM	ELIGIBLE COST	INELIGIBLE COST
Planning		
Technical Services	$314,000.00	$0.00
Total:	**$314,000.00**	$0.00

Exhibit B

PROJECT SCHEDULE

Project	Project Start	Project Completion
Technical Services	12/1/2003	11/30/2004

Exhibit C

SPECIAL CONDITIONS

(1) The Applicant shall ensure that any prime contracts or subcontracts for services, construction, goods or equipment for the Project contains the applicable M/WBE utilization goals: construction [MBE - 8.25%, WBE - 2.09%]; services [MBE - 11%, WBE - 5%]; goods [MBE - 2%, WBE - 1%]; and equipment [MBE - 5%, WBE - 2%]. The applicable M/WBE goals depend on the predominate character of the specific contract being procured by the Applicant, as determined by the Department. The Applicant shall ensure that all vendors submitting bids or proposals as prime contractors or subcontractors in response to Project-related procurements complete the Commonwealth of Massachusetts Vendor Information Form ("VIF"). The Applicant shall also be responsible for submitting the completed VIFs to the Department when it requests the Department's approval to award the contract.

(2) The Applicant shall submit an executed copy of the contract for engineering services to the Department within sixty (60) days of the date of contract execution. The Applicant understands that no payments for the Project will be processed until such contract has been submitted to the Department.

(3) Prior to receiving final payment for the Project, the Applicant shall certify to the Department that all work included in the Project Regulatory Agreement for the Project, as approved by the Department, has been completed and performed in accordance with the Project Regulatory Agreement.

(4) The Applicant shall establish accounts for the Project which shall be maintained in accordance with generally accepted government accounting standards.

(5) The Applicant understands and agrees that the Department's issuance of a Project Approval Certificate for this Project or entry into a Project Regulatory Agreement does not constitute the Department's sanction or approval of any changes or deviation from any applicable state regulatory or permit standards, criteria, or conditions, or from the terms or schedules of state enforcement actions or orders applicable to the Project.

(6) The Applicant agrees to provide any Project information and documentation requested by the Department. The Applicant shall maintain all Project records for seven (7) years after the issuance of final payment or until any litigation, appeal, claim, or audit that is begun before the end of the seven (7) year period is completed or resolved, whichever is longer.

(7) Any proposed change in Project-related contracts which substantially modifies the Project initially proposed shall be submitted to the Department for prior approval.

(8) The Applicant's implementation of the Project, including the procurement of related contracts, shall comply with all applicable requirements of state and local laws, ordinances, by-laws, rules and regulations.

Appendix 3B

Year 1

Non-Stormwater Discharge

Detention Pond Deed Restrictions

KNOW ALL MEN BY THESE PRESENTS, that, I

CHARLES R. CALABRESE

of 10 Woodside Drive, Agawam, Hampden County, Massachusetts,

for consideration paid, and in full consideration of

grant to

of

WITH QUITCLAIM COVENANTS

Certain real estate situate in **AGAWAM**, Hampden County, Massachusetts, being known and designated as Lot #2 (two) as shown on a plan entitled "Definitive Subdivision – Woodside Drive Estates", Agawam, Massachusetts, for Charles R. Calabrese, 10 Woodside Drive, ~~Agawam~~ Rev 3-1-04 Agawam, MA Dated: 9-04-2003, Revised: 1-21-2004 & Revised: 1-29-2004, which plan is recorded in the Hampden County Registry of Deeds, Book of Plans _____, Page _____, to which plan reference is hereby made for a more particular description.

Lot 2 Woodside Drive contains 31,145 S.F. of land according to said plan.

SUBJECT TO Storm Drainage Easement to Town of Agawam dated _____ and recorded in the Hampden County Registry of Deeds in Book _____Page_____.

Granting to the Town of Agawam, a perpetual right, privilege, authority, and easement for the purpose of constructing, repairing, inspection, and/or maintenance of a detention pond on the premises necessary for public convenience and health and to enter into said land with such equipment, machinery, tools and apparatus as is necessary to alter, repair and maintain said detention pond, and the Grantee, its successors and assigns hereby agrees to not cause or permit the same to become clogged or any water flow into or through the same to be impeded by debris, siltation, vegetation (in excess of what is needed to control erosion), the placement of any structure or otherwise; nor shall the owner cause or permit any condition to exist, such as loss of suitable ground cover, which would contribute to the erosion or siltation of the drainage channel. Maintenance shall include mowing of grassed areas a minimum of 2 times per year (June and October). Nor shall the Grantee contribute to non-stormwater discharges from the outlet of the detention pond, including but not limited to yard wastes, animal wastes, pesticides, herbicides, fertilizers, and hazardous substances.

BEING a portion of the premises conveyed to the grantors herein by deed of and recorded in the Hampden County Registry of Deeds, Book , Page .

Witness my hand and seal this day of March, 2004.

CHARLES R. CALABRESE

COMMONWEALTH OF MASSACHUSETTS

Hampden, ss: March , 2004

On this day of March, 2004, before me, the undersigned Notary Public, personally appeared **CHARLES R. CALABRESE** proved to me through satisfactory evidence of identification, which was , to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purposes.

RAYMOND W. GENDRON, Notary Public
My Commission expires: 09-18-2009

Appendix 3B

Year 1

Non-Stormwater Discharge Ordinance

(5) Any development for which detention has been provided by a centralized basin to the extent of impervious land coverage provided by the central facility design.

C. The design of detention facilities shall follow recommendation of the Soil Conservation Service in the publication entitled "Urban Hydrology for Small Watersheds", Technical Release No. 55 SCS, January 1975, or the latest version thereof.

D. The design criteria for detention shall be a one-hundred-year storm of a twenty-four-hour duration unless specifically exempted by the Superintendent.

E. All calculations, designs, plans and specifications, shall be prepared by a registered professional engineer.

ARTICLE V
Use of Public Sewers

§ 175-36. Discharge of certain waters prohibited.

No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary sewer.

§ 175-37. Discharge of unpolluted drainage.

Stormwater and all other unpolluted drainage shall be discharged to a natural outlet if such outlet is reasonably accessible. If no such outlet is available, such unpolluted wastes may be discharged into combined sewers or storm sewers if approved by the Superintendent.

§ 175-38. Prohibited discharges. [Amended 7-9-1984]

No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

A. Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas.

B. Any waters or wastes containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of the sewage treatment plant.

C. Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewage works, such as but not limited to ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers, etc., either whole or ground by garbage grinders.

§ 175-39. Discharge of harmful substances.

No person shall discharge or cause to be discharged any substances, materials, waters or wastes if it appears likely, in the opinion of the Superintendent, that such substances, materials, water or wastes can harm either the sewers, sewage treatment process or equipment, have an adverse effect on the receiving stream or can otherwise endanger life, limb or public property or constitute a nuisance. In forming this opinion as to the acceptability of these substances, materials, waters or wastes, the Superintendent will give consideration to such factors as the quantities of subject wastes in relation to flows and velocities in the sewers, the materials of construction of the sewers, the nature of the sewage treatment process, the capacity of the sewage treatment plant, the degree of treatability of wastes in the sewage treatment plant and other pertinent factors. This prohibition shall include but not be limited to the following:

receiving stream

A. Any liquid or vapor having a temperature in excess of one hundred forty degrees Fahrenheit (140° F.), unless the town requires a lower temperature limit to ensure that the temperature of influent wastewater at the town's wastewater treatment works does not exceed one hundred four degrees Fahrenheit (104° F.). **[Amended 1-21-1986 by TOR-85-4]**

B. Any water or waste containing fats, wax, grease or oils, whether emulsified or not, in excess of one hundred (100) milligrams per liter or containing substances which may solidify or become viscous at

(2) Excessive discoloration (such as but not limited to dye wastes and vegetable tanning solutions).

(3) Unusual BOD, chemical oxygen demand or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment works.

(4) Unusual volume of flow or concentration of wastes constituting slugs as defined herein.

J. Waters or wastes containing substances which are not amendable to treatment or reduction by the sewage treatment processes employed, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.

§ 175-40. Powers of Superintendent regarding discharge of deleterious substances.

A. If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters or wastes contain the substances or possess the characteristics enumerated in § 175-39 of this Article, and which in the judgment of the Superintendent may have a deleterious effect upon the sewage works, processes, equipment or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Superintendent may:

(1) Reject the wastes,

(2) Require pretreatment to a condition acceptable to the Superintendent for discharge to the public sewers,

(3) Require control over the quantities and rates of discharge, and/or

(4) Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under the provisions of § 175-45 of this Article.

B. If the Superintendent permits the pretreatment or equalization of waste flow, the design and installation of the plants and equipment shall be subject to the review and approval of the Superintendent, and subject to the requirements of all applicable codes, ordinances and laws.

temperatures between thirty-two degrees and one hundred fifty degrees Fahrenheit (32° and 150° F.) [zero degrees and sixty-five degrees Celsius (0° and 65° C.)].

C. Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipped with a motor of three-fourths (¾) horsepower [seventy-six hundredths (0.76) horsepower metric] or greater shall be subject to the review and approval of the Superintendent.

D. Any waters or wastes containing strong acid, iron, pickling wastes or concentrated plating solutions, whether neutralized or not, unless heavy metals and other sludge have been adequately removed from said wastes in the opinion of the Superintendent.

E. Any waters or wastes containing iron, chromium, copper, zinc and similar objectionable or toxic substances; or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage treatment works exceeds the limits established by the Superintendent for such materials.

F. Any waters or wastes containing phenols or other taste- or odor-producing substances in such concentrations exceeding limits which may be established by the Superintendent as necessary, after treatment of the composite sewage, to meet the requirements of the state, federal or other public agencies or jurisdiction for such discharge to the receiving waters.

G. Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Superintendent in compliance with applicable state or federal regulations.

H. Any waters or wastes having a pH in excess of nine point six (9.6) or any waters or wastes having a pH lower than five point five (5.5), or having any other corrosive property capable of causing damage or hazard to structures, equipment and personnel of the sewage works.

I. Materials which exert or cause:

(1) Unusual concentrations of inert suspended solids (such as but not limited to fuller's earth, lime slurries and lime residues) or of dissolved solids (such as but not limited to sodium chloride and sodium sulfate).

Appendix 3F

Year 1

Failing Septic Systems – Failed Systems 2003

Appendix 3F

The following is a list of locations which had septic system failures in 2003 according to the Agawam Board of Health records.

126 Barry St.
719 Barry St.
10 Beech Hill Rd.
30 Cherry St.
55 Christopher Ln.
13 Gener Dr.
108 Karen Lynn Circle
135 Lealand Ave.
70 Nolan Ln.
226 North West St.
825 North West St.
64 Oak Ln.
655 South West St.
497 South Westfield St.
550 Southwick St.
24 White Fox Rd.
25 Woodcock St.

Appendix 3F

Year 1

Failing Septic Systems – Project Evaluation Report

Draft

Southwest Area Wastewater Disposal Evaluation

Project Evaluation Report

Town of Agawam
Department of Public Works

July, 2003

Submitted by

Tighe&Bond

E.1 INTRODUCTION

This report presents a wastewater disposal evaluation performed for the southwest area of Agawam. This evaluation has been performed to determine whether wastewater disposal improvements are needed in this area of Town and, if they are determined to be necessary, the most appropriate and cost-effective means of wastewater disposal for the area. The southwest area of Town is currently served by individual subsurface wastewater disposal systems (primarily septic tanks with leach fields) and is unsewered.

This evaluation follows Massachusetts Department of Environmental Protection (MADEP) guidelines in order to maintain eligibility for funding through the State Revolving Fund (SRF) Loan Program. The MADEP requires that for a project of this size and scope a Project Evaluation Report be prepared prior to design documenting the need for wastewater disposal improvements and that various wastewater disposal alternatives have been considered.

The following tasks were performed as part of this evaluation and are described in the report:

1. Reviewed existing background information
2. Developed mapping of the study area
3. Reviewed prior planning efforts
4. Assessed current conditions in the study area
5. Projected future development in the study area
6. Evaluated the need for improvements to existing wastewater disposal systems
7. Developed and evaluated wastewater disposal improvement alternatives

The study area was divided into 22 sub-areas in order to obtain detailed, site-specific information from individual neighborhoods on the need for wastewater disposal improvements and to prioritize improvements in the study area. These sub-areas are shown on Figure 2-1 in the report.

E.2 EXAMINATION OF NEED

The need for wastewater disposal improvements in the study area was determined by first evaluating the results of a wastewater disposal questionnaire survey distributed to each resident in the study area and evaluating Board of Health (BOH) Title 5 inspection

records. This information was used to provide evidence that wastewater disposal improvements are needed in the study area and to prioritize the need for improvements.

Septic system problems were identified throughout the study area through the questionnaire survey and BOH Title 5 inspection records. Five sub-areas were determined to be of greatest concern with a "High" need for wastewater disposal improvements:

1. Bradford Drive Area (Sub-Area 14)
2. White Fox Road Area (Sub-Area 16)
3. Tobacco Farm Road Area (Sub-Area 19)
4. North West Street (Sub-Area 22)
5. Joanne Circle Area (Sub-Area 3)

Only 5 of the 22 sub-areas were determined to have a "Low" need for wastewater disposal improvements (Sub-Areas 1, 4, 6, 10 and 11). These sub-areas were located in the southern portion of the study area, along Barry Street. Need priority is shown on Figure 3-1 in the report.

Following the questionnaire survey and review of BOH Title 5 inspection records, soil, groundwater, and water quality data were collected in the "High" need areas listed above to further document the need for wastewater disposal improvements. In addition, property inspections were performed in the "High" need areas to further document septic system failures.

The soil borings, property inspections, and water quality testing confirmed that septic system problems are significant in these five sub-areas. The data collected indicates that poor soil conditions, seasonal high groundwater levels, and small lot sizes contribute to the septic system failures reported in each of these sub-areas.

The Bradford Drive Area (Sub-Area 14) has the most significant need for wastewater disposal improvements. In Sub-Area 22 (North West Street Area), the Karen Lynn Circle area appears to be of particular concern. In Sub-Area 19, poor septic system design/installation may also contribute to the septic system failures reported.

The data collected during this evaluation indicates that septic system problems are widespread and supports the need for wastewater disposal improvements in the study area, especially in Sub-Areas 3, 14, 16, 19, and 22 (Karen Lynn Circle area). As such, wastewater disposal improvement alternatives for the study area were developed and are summarized in the paragraphs that follow.

E.3 DEVELOPMENT AND EVALUATION OF ALTERNATIVES

Wastewater disposal improvement alternatives have been developed for the study area, including especially the five "High" need areas listed previously. The wastewater disposal improvement alternatives considered during this evaluation can be divided into three categories:

1. Continue to use individual sub-surface disposal systems
2. Construct decentralized, neighborhood treatment facilities
3. Expand the Town's existing sanitary sewerage system

Wastewater disposal improvement alternatives have been developed, evaluated and compared for each of these categories.

E.3.1 Individual Sub-Surface Disposal Systems

Individual sub-surface disposal systems appear to be effective and appropriate in some portions of the study area, such as the Barry Street area, from South West Street to South Westfield Street. In this area, septic system problems were relatively infrequent, few homeowners had to modify their lifestyle to accommodate their septic systems, and the perceived need for sewer service was lower than in other study sub-areas. The 1978 soil survey data indicates that the soils are generally favorable for sub-surface wastewater disposal along this portion of Barry Street.

The septic tank problems identified throughout the study area can, in many cases, be attributed to poor soils, high groundwater, and/or small property lots. Where these poor site conditions exist, continued use of conventional septic systems (septic tanks, distribution boxes, and leach fields) is not expected to provide effective, trouble-free wastewater treatment and would likely require that homeowners continue to modify their lifestyles to accommodate their septic systems. However, upgrades to the individual septic systems or replacement with homeowner Innovative/Alternative (I/A) treatment systems (such as FAST or Amphidrome) may be effective in addressing the problems currently experienced in some of these areas.

In the sub-areas with the worst site conditions (poor soils, high groundwater, and small lot sizes) upgrading or replacing individual homeowner septic systems is least likely to provide effective wastewater treatment and disposal. As an alternative to upgrading or replacing individual septic systems, decentralized, neighborhood treatment facilities and expansion of the existing sewerage system to serve the study area were considered.

E.3.2 Decentralized Treatment Facilities

The construction of decentralized, neighborhood treatment facilities was considered in this evaluation and is expected to provide effective wastewater treatment and disposal, assuming that appropriate sites for soil absorption systems can be identified in or near the neighborhoods to be served. For the purposes of this evaluation, preliminary soil absorption sites have been selected, based on a review of open land areas and soil survey data, and are presented in the report.

The five neighborhoods with a "High" need for wastewater disposal listed below were targeted for decentralized treatment facilities in this evaluation:

1. Bradford Drive Area (Sub-Area 14)
2. White Fox Road Area (Sub-Area 16)
3. Tobacco Farm Road Area (Sub-Area 19)
4. Karen Lynn Circle Area (neighborhood in Sub-Area 22)
5. Joanne Circle Area (Sub-Area 3)

These five sub-areas were selected because upgrading or replacing individual septic systems is least likely to be effective in these neighborhoods because of the poor site conditions identified in these areas, as described in Section 3 of this report. However, the Town may also wish to pursue the construction of decentralized treatment facilities in other study areas to address septic system problems.

The wastewater treatment and disposal system for the Bradford Drive neighborhood (Sub-Area 14) would be regulated by Title 5, based on the anticipated wastewater flows. The construction of a conventional septic system (septic tank, dosing chamber, and leach field) was determined to be appropriate for this neighborhood. The total cost (capital cost and 20-year O&M cost) of the neighborhood septic system and the sewers required to convey the wastewater flow from the neighborhood to the soil absorption system is estimated as $1,037,000.

The wastewater treatment and disposal systems for the remaining four neighborhoods would require Groundwater Discharge Permits because the anticipated wastewater flows exceed the Title 5 limits. For these neighborhoods, a conventional septic system would not be appropriate and Innovative/Alternative (I/A) treatment systems are expected to be necessary to provide sufficient treatment to meet the anticipated permit effluent limits. Four I/A biological treatment systems were considered as part of this evaluation and are listed below:

- Amphidrome
- FAST
- Rotating Biological Contactors (RBCs)
- ZenoGem

The total costs of these treatment systems were determined for each of the five sub-areas. The total costs include the cost to construct the treatment facilities, soil absorption system, and sewer collection system; design and construction phase engineering services costs; permitting costs; land acquisition costs; and annual operation and maintenance costs over a 20-year period. The locations of the decentralized treatment facilities are shown in Figure 4-1 in the report.

The four treatment systems were also compared based on performance and reliability, land space requirements and expandability, and aesthetic impacts. The treatment systems were ranked from 1 to 5 in each category with 1 being the least favorable and 5 being the most favorable and an average rank was developed for each system. Each of the I/A biological treatment systems considered is expected to be able to comply with the anticipated Groundwater Discharge Permit effluent limits.

The FAST and Amphidrome systems provide wastewater treatment and disposal at a lower cost than the RBC and Zenogem systems for the flow ranges required in Agawam, and have a relatively high average non-monetary rank. A summary of the estimated costs of the FAST and Amphidrome systems for Sub-Areas 3, 16, 19 and 22 (Karen Lynn Circle area) is presented below in Table E-1.

Table E-1

Engineer's Opinion of Probable Decentralized Facilities Costs

Sub-Area	Description	Total Cost [1]	
		Amphidrome System	FAST System
3	Joanne Circle Area	$2.5 million	$2.6 million
16	White Fox Road Area	$3.0 million	$3.1 million
19	Tobacco Farm Road Area	$2.1 million	$2.2 million
22	Karen Lynn Circle Area	$1.6 million	$1.6 million
Total		**$9.2 million**	**$9.5 million**

Notes:

(1) Total project costs include construction costs, engineering services costs, permitting costs, land acquisition costs, and 20-year O&M costs.

ZenoGem is a more expensive system, but did score high on the non-monetary ranking and is expected to also produce a high quality effluent. The results of the cost and non-monetary evaluation indicate that an RBC system is the least attractive treatment alternative since it has the highest cost and lowest non-monetary rank.

E.3.3 Sewerage System Expansion

The expansion of the existing sewerage system to serve the study area was considered as part of this evaluation. A total of 15 sewerage system expansion alternatives were developed, which consist of various combinations of gravity sewers, pump stations, and low pressure sewers/grinder pumps to convey wastewater flow from the study area to the existing sanitary sewerage system. These alternatives are shown in Figures 4-2 through 4-16 in the report.

In order to reduce the number of pump stations that would otherwise be needed, the construction of cross-country sewers along the low-lying areas adjacent to Still Brook was considered for many of the alternatives. Four Still Brook Interceptor sections were established for the purposes of this evaluation. Still Brook Interceptor Sections 1 and 2 would impact wetlands and rare species habitats and Still Brook Interceptor Sections 3 and 4 would impact only wetlands. Construction of Section 3 would have the smallest environmental impact and, as such, is most likely to be approved of the four Still Brook Interceptor sections considered.

Total project costs were developed for each alternative, which include construction costs, design and construction phase engineering services costs, permitting costs, land acquisition costs, and operation and maintenance (O&M) costs over a 20-year period. The total project costs range from $28.7 million to $33.4 million, as shown in Table E-2. Generally, the alternatives with greater lengths of cross-country sewer (more Still Brook Interceptor sections) have a higher estimated cost.

In addition, the capital costs to construct new sewerage facilities (gravity sewers, pump stations, force mains, and low pressure sewers/grinder pumps) to serve just the "high" need areas identified (Sub-Areas 3, 14, 16, 19, & the Karen Lynn Circle neighborhood in Sub-Area 22) were developed and are also shown in Table E-2.

Table E-2

Sewerage System Expansion Alternatives Summary

Southwest Area Wastewater Disposal Evaluation

Alternative No.	Description	Total Project Costs [1]	Capital Costs to Serve "High" Need Areas[2]	Average Non-Monetary Rank [3]
1	Gravity sewers Seven pump stations	$29,740,000	$18,029,000	3.8
2	Gravity sewers Six pump stations, Still Brook Inter. Section 1	$30,940,000	$18,599,000	3.2
3	Gravity sewers Six pump stations, Still Brook Inter. Section 2	$30,680,000	$18,369,000	3.0
4	Gravity sewers Five pump stations, Still Brook Inter. Sections 1 & 2	$31,450,000	$18,558,000	3.0
5	Gravity sewers Six pump stations, Still Brook Inter. Section 3	$30,340,000	$18,252,000	3.6
6	Gravity sewers Four pump stations, Still Brook Inter. Sections 1, 2 & 3	$32,210,000	$19,972,000	2.8
7	Gravity sewers Five pump stations, Still Brook Inter. Sections 1 & 3	$31,480,000	$18,745,000	3.4
8	Gravity sewers Five pump stations, Still Brook Inter. Sections 2 & 3	$31,310,000	$19,654,000	3.0
9	Gravity sewers Four pump stations, Still Brook Inter. Sections 1, 2, 3 & 4	$33,360,000	$19,699,000	2.6
10	Gravity & LP sewers (SAs 4 & 14) Five pump stations	$29,400,000	$17,822,000	4.0
11	Gravity & LP sewers (SAs 4 & 14) Four pump stations, Still Brook Inter. Section 3	$29,700,000	$17,848,000	4.0
12	Gravity & LP sewers (SAs 4 & 14) Three pump stations, Still Brook Inter. Sections 1 & 3	$30,820,000	$17,495,000	4.0
13	Gravity & LP sewers (SAs 4, 14 & 16) Four pump stations	$28,690,000	$17,222,000	3.8
14	Gravity & LP sewers (SAs 4, 14 & 16) Three pump stations, Still Brook Interceptor Section 3	$29,290,000	$17,550,000	3.8
15	Gravity & LP sewers (SAs 4, 14 & 17) Three pump stations, Still Brook Interceptor Section 3	$28,730,000	$17,785,000	4.0

Notes:

(1) Total project costs include construction costs, design and construction phase engineering services costs, permitting costs, land acquisition costs, and operation and maintenance costs over a 20-year period.

(2) The "high" need areas identifed include Sub-Areas 3, 14, 16, 19 and 22 (Karen Lynn Circle area).

(3) The average non-monetary rank is based on the rank determined for (1) the cost to serve the "high" need areas, (2) environmental impacts, (3) pump stations, (4) expandability, and (5) land acquisition. Alternatives are ranked from 1 to 5 in each category with 1 being the least favorable and 5 being the most favorable.

The capital costs to serve just the sub-areas with a "High" need for wastewater disposal improvements (Sub-Areas 3, 14, 16, 19, and the Karen Lynn Circle area in Sub-Area 22) range from $17.2 million to $20.0 million, which is a significant portion of the capital costs to sewer the study area. These high costs reflect that the sewers and pump stations that would be constructed to serve the "High" need areas would provide the backbone of the study area sewerage system. Once these sewers and pump stations are installed, the sewerage system can be easily and cost-effectively expanded in the future to serve other sections of the study area.

In addition to comparing alternatives based on cost, alternatives were also compared based on environmental impacts, pump stations, expandability, and land acquisition. Alternatives were ranked from 1 to 5 in each category with 1 being the least favorable and 5 being the most favorable. The average non-monetary ranks range from 2.6 to 4.0. Generally, the alternatives with greater lengths of cross-country sewer (more Still Brook Interceptor sections) have a lower non-monetary rank, primarily because of the greater environmental impacts.

E.4 RECOMMENDATIONS

E.4.1 Individual Sub-Surface Disposal Systems

Individual sub-surface disposal systems appear to be effective and appropriate in only a few of the study sub-areas, primarily in the Barry Street area, from South West Street to South Westfield Street. In the remaining sub-areas poor site conditions (high groundwater levels, poor soils, and/or small lot sizes) were identified.

In some cases, upgrades to homeowner septic systems or replacement with Innovative/Alternative (I/A) treatment systems may be an effective method of wastewater disposal. Although system upgrades or replacement with I/A treatment systems may reduce the severity of disposal system problems (i.e. reduction in breakout occurrences, odors, sewer backups, etc.) in areas with difficult site conditions, they may not completely correct the wastewater disposal problems. More detailed, site-specific investigations, such as excavating test pits and determining soil percolation rates, are necessary to determine whether upgraded septic systems or I/A treatment systems will be effective for individual homeowners.

In the sub-areas with the worst site conditions (poor soils, high groundwater, and small lot sizes), including especially the "High" need areas listed above, upgrading or replacing individual homeowner septic systems is not expected to provide effective long-term wastewater treatment and disposal. Instead, it is recommended that the Town consider decentralized, neighborhood treatment facilities or expansion of the existing sewerage system to correct the wastewater disposal problems in these areas.

E.4.2 Decentralized Treatment Facilities

As discussed previously, a conventional Title 5 septic system would be appropriate for the Bradford Drive Area (Sub-Area 14) and is recommended if a decentralized treatment facility is pursued to address wastewater disposal problems in this neighborhood.

For the remaining four "high" need areas (Sub-Areas 3, 16, 19 and Karen Lynn Circle neighborhood in Sub-Area 22), it is recommended that the Town review in greater detail the Amphidrome and FAST systems if decentralized treatment facilities are pursued in these neighborhoods. As noted previously, these treatment facilities are expected to provide the anticipated level of treatment needed at the lowest cost and have a relatively high non-monetary rank. The actual Groundwater Discharge Permit effluent limits should be determined by the Town during design since these limits could have an impact on the selection of the preferred treatment system.

The decentralized treatment facilities for the five "high" need areas, shown on Figure 4-1, would require between 0.5 and 1.1 acres of land area in or near these neighborhoods in order to site the treatment units and the leach field. The effectiveness of these treatment systems is contingent upon the soil conditions on these sites being suitable for sub-surface wastewater disposal. As such, it is recommended that a more detailed review of soil conditions be performed if decentralized treatment facilities are pursued to confirm soil suitability.

By constructing decentralized treatment facilities in the five "high" need areas, 237 of the 732 homes in the study area would be served at a capital cost/house ranging from $31,100 to $44,400, as is detailed in Section 6.3.

E.4.3 Sewerage System Expansion

The sewerage system expansion alternatives that are believed to provide the Town with the best combination of relatively low total project cost, low cost to serve the "high" need areas identified, and high non-monetary ranking are listed in Table E-3.

The total project costs for the four preferred alternatives were similar, ranging from $28.7 million to $29.7 million (3% difference). The capital costs to serve the five "high" need areas were also similar, ranging from $17.2 million to $17.8 million (3% difference). Each of the preferred alternatives also has a relatively high non-monetary rank, ranging from 3.8 to 4.0 (5% difference).

Table E-3

Summary of Preferred Sewerage System Expansion Alternatives

Alternative No.	Description	Total Project Costs (1)	Capital Costs to Serve "High" Need Areas (2)	Average Non-Monetary Rank (3)
10	Gravity & LP sewers (SAs 4 & 14) Five pump stations	$29.4 million	$17.8 million	4.0
11	Gravity & LP sewers (SAs 4 & 14) Four pump stations Still Brook Interceptor Section 3	$29.7 million	$17.8 million	4.0
13	Gravity & LP sewers (SAs 4, 14 & 16) Four pump stations	$28.7 million	$17.2 million	3.8
14	Gravity & LP sewers (SAs 4, 14 & 16) Three pump stations Still Brook Interceptor Section 3	$29.3 million	$17.6 million	3.8
15	Gravity & LP sewers (SAs 4, 14 & 17) Three pump stations Still Brook Interceptor Section 3	$28.7 million	$17.8 million	4.0

Notes:

(1) Total project costs include construction costs, engineering services costs, permitting, land acquisition, and O&M costs over a 20-year period.

(2) The "high" need areas identified include Sub-Areas 3, 14, 16, 19 and 22 (Karen Lynn Circle Area).

(3) The average non-monetary rank is based on the rank determined for (1) the cost to serve the "high" need areas, (2) environmental impacts, (3) pump stations, (4) expandability, and (5) land acquisition. Alternatives are ranked from 1 to 5 in each category with 1 being the least favorable and 5 being the most favorable.

Alternative 15 (shown in Figure 4-16) is the recommended sewer system expansion alternative because of its relatively low total project cost and high non-monetary rank. Note that Alternative 15 is contingent upon the Oak Ridge Golf Club allowing construction of Section 3 of the Still Brook Interceptor through the golf course.

By expanding the sewer system to serve the entire study area, the 732 homes in the study area would be served at a cost ranging from approximately $18,000 to $25,000 per home, based on the Alternative 15 capital cost. The estimated cost/house is detailed in Section 6.4.

E.4.4 Overall Recommendations

Sewerage system expansion (Alternative 15) is recommended over repair/replacement of existing septic systems or construction of decentralized treatment facilities for the following reasons:

1. Repair or replacement of individual septic systems is not expected to be effective in some areas because of the poor site conditions identified.

2. The estimated cost per house for sewerage system expansion, which ranges from $18,000 to $25,000, is less expensive than the estimated cost per house for the construction of decentralized facilities, which ranges from $31,000 to $44,000.

3. Sewerage system expansion provides a more comprehensive solution to the wastewater disposal problems identified throughout the study area than decentralized facilities constructed to serve only the areas of highest need.

4. Sewerage system expansion appears to be preferred by residents in the study area, based upon input provided at the public meeting.

The tasks required to implement sewerage system expansion in the study area and a schedule for these tasks are presented in section 6.5.

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Appendix 4A

Year 1

Existing

Construction Runoff Ordinance

§ 159-27. Clearing and grading.

To prevent wind and water erosion, the following measures must be employed on all sites:

A. Regions of the site must be developed in separate increments so that the disturbed area is kept to a minimum. At no time is the entire area to be disturbed.

B. Natural vegetation shall be retained and protected whenever possible.

C. All disturbed area shall be stabilized with a temporary vegetative cover if to be left exposed for greater than one (1) month, with the exception of roadways which are to be treated with appropriate measures at the end of each workday.

D. All stockpiled soils shall be stabilized with temporary vegetative cover.

§ 159-28. Loam or topsoil.

No loam or topsoil shall be removed from the property until the subdivision is complete, and then only with the permission of the Board of Appeals as specified in § 180-8G of Chapter 180, Zoning.

§ 159-29. Permits.

Upon receipt of permits from the Inspector of Buildings to construct dwellings, etc., each lot line must be clearly marked and lot identified by lot and street number before any inspections are made. Compliance with the Conservation Commission's regulations must be posted, if applicable.

§ 159-30. Excavations.

All excavations for pipe, etc. across streets and to dwellings shall be properly protected and lighted at proper times, according to recommendations of the Department of Public Works and the Chief of Police. These excavations shall be properly backfilled and well compacted as soon after installation of pipe, etc. as is possible.

Appendix 5A

Year 1

Town of Agawam – Code

Existing Ordinance

Subdivision Drainage Design Standards

costs of operating and maintaining a station shall not be assumed by the town until one (1) year from the date of completion of the last house in the last section of the subdivision.

D. The sewer lateral to each lot shall be shown on the plans. During the time the applicant is responsible for the station he shall enter into an agreement with the Town of Agawam relative to its maintenance and operation.

§ 159-12. Drainage.

A. A system of drains shall be installed to collect stormwater from the proposed streets and lots and to transmit the water to a point where it may be discharged in a natural watercourse or stream. The drains shall be designed to have a minimum velocity at design flow of three (3) feet per second and a maximum velocity of ten (10) feet per second. The sizing of storm drains and culverts shall be as specified in the Report on Storm Drainage for the Town of Agawam by Tighe & Bond, 1972, and/or as approved by the Town Engineer.

B. In general, surface water from the lots shall not be deposited directly into the ways. The area within the setback line may be graded to drain toward the street line. All other surface water from individual lots shall be handled insofar as possible within the lots themselves. Developers shall provide for lot surface drainage by a system separate from drainage of the street, by the use of swales, culverts, retention ponds, yard drains and piping, riprapped outlets at the water body, etc., in a manner which shall protect the natural water table unless the lowering of the water table is necessary for the health of the occupants. Strict attention shall be paid to the relationship of leaching fields to surrounding grading. Surface water systems shall not connect into the road drainage system except by permission of the Board, in which case such condition shall be noted on the approved plan. The total design of the system shall also meet with the approval of the Town Engineer.

C. Where, in the opinion of the Town Engineer and/or Planning Board, the discharge of stormwater from a subdivision will alter the character of a watercourse to overflow its banks (confines), then the applicant will be required to submit drainage and flowage easements along said watercourse to a point where it is determined by the Town Engineer

and/or Planning Board that the effect of the stormwater drainage discharge will have a negligible effect on the watercourse. The easements and flowage rights shall be of such width to cover the extent of the suspected flooding. These easements and flowage rights will be required both within and outside of the boundaries of the proposed subdivision. The total design of the system shall also meet with the approval of the Town Engineer.

D. All subdivisions shall be constructed in conformance with the Town Storm Drainage Ordinance.[11] Detention ponds will be utilized as required and each detention pond will be fenced except as otherwise required by the Department of Public Works. Construction standards shall comply with Department of Public Works Standards. No dry wells or leaching fields for the underground disposal of stormwater will be allowed. No stormwater holding ponds without positive surface outlets shall be allowed.

§ 159-13. Water.

A. Water mains and appurtenances such as hydrants, valves, blowoffs and air release valves shall be installed to serve all lots on each street in the subdivision. The sizing of water mains shall be as specified in the Water Distribution Study when completed and/or as required by the Town Engineer. In general the minimum size water main that will be allowed is an eight-inch-diameter line.

B. Hydrants shall be installed to provide fire protection to the subdivision. The maximum distance allowed between hydrants is five hundred (500) feet. Wherever possible, hydrants should be located at lot lines.

C. All intersections of water mains shall be fully valved. Also, main line valves shall be installed every one thousand (1,000) feet along a water main.

D. The water service connection to each lot shall be indicated on the plans. The total design of the system shall also meet with the approval of the Town Engineer.

[11] Editor's Note: See Art. VII of Ch. 175, Water and Sewers.

Appendix 5B

Year 1

Town of Agawam - Code

Existing Ordinances

DPW Drainage Design Requirements

§ 175-35. Drainage calculations; on-site detentions. [Added 7-9-1984]

A. In applications for drainage permits required by § 175-22 and the utilization of storm drains, watercourses and drainage channels, and for purposes of determining when and to what extent on-site detention and disposition of water is necessary, the owner, at his own expense, shall submit for approval to the Superintendent such design as the Superintendent shall reasonably request at a scale no smaller than one (1) inch equals eighty (80) feet and computations prepared by a registered engineer of the commonwealth, based on the rational method in accordance with the ASCE Manual and Report on Engineering Practice No. 37 (WPCF Manual of Practice No. 9). Applications for permits will be reviewed to determine capacity of the receiving storm drain or watercourse to handle the planned discharge, compliance with the townwide master drainage study entitled "Report of Surface Drainage, 1972" and within the Agawam Regional Industrial Park, in compliance with the stormwater management plan contained in the Environmental Impact Report, EOEA No. 4782, and shown on the topographic map of the plans for Agawam Regional Industrial Park - Industrial Park Improvement Project, filed with the Agawam Department of Public Works and the Agawam Planning Board. For watersheds greater than twenty (20) acres, computations for culverts and watercourses shall be developed based on the Soil Conservation Service (SCS) methods in accordance with SCS Technical Release No. 55, Urban Hydrology for Small Watersheds.

B. All land development projects that would increase stormwater runoff or increase the percentage of impervious coverage of the land shall provide for on-site detention of the increased runoff unless specifically excluded herein. Excluded development projects are:

(1) Single-family dwellings on isolated lots of record.

(2) Single-family dwellings on lots larger than one (1) acre in size that are not built in conjunction with a new subdivision of land requiring Planning Board approval.

(3) Any development on sites of one (1) acre or less that are not or could not be part of a series of contiguous new Form A lots.[6]

(4) Footing drain or sump pump discharges.

[6] Editor's Note: Form A is on file in the Planning Department offices.

(5) Any development for which detention has been provided by a centralized basin to the extent of impervious land coverage provided by the central facility design.

C. The design of detention facilities shall follow recommendation of the Soil Conservation Service in the publication entitled "Urban Hydrology for Small Watersheds", Technical Release No. 55 SCS, January 1975, or the latest version thereof.

D. The design criteria for detention shall be a one-hundred-year storm of a twenty-four-hour duration unless specifically exempted by the Superintendent.

E. All calculations, designs, plans and specifications, shall be prepared by a registered professional engineer.

ARTICLE V
Use of Public Sewers

STORM DRAINS, DETENTION PONDS OR WATER COURSES

§ 175-36. Discharge of certain waters prohibited.

No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water or unpolluted industrial process waters to any sanitary sewer.

§ 175-37. Discharge of unpolluted drainage.

Stormwater and all other unpolluted drainage shall be discharged to a natural outlet if such outlet is reasonably accessible. If no such outlet is available, such unpolluted wastes may be discharged into combined sewers or storm sewers if approved by the Superintendent.

OR STORM DRAINAGE SYSTEM

§ 175-38. Prohibited discharges. [Amended 7-9-1984]

No person shall discharge or cause to be discharged any of the following described waters or wastes to any public sewer:

A. Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas.

Appendix 5B

Year 1

Town of Agawam - Code

Existing Ordinances

Site Plan Regulations

I. Effect of denial. If the special permit granting authority after said hearing denies the use applied for, no further application for the same use will be entertained by the Board of Appeals for a period of two (2) years from the date of said denial.

§ 180-12. Special permit for animal hospital.

A special permit may be granted for an animal hospital, but only in Business A and Business B Districts and with the additional requirements that animal hospitals shall be separate buildings in themselves and that no animals shall be kept out of the building in cages, runs, kennels or yards. A special permit may be granted subject to any other conditions and safeguards as are prescribed by the Board of Appeals.

§ 180-13. Site plans. [Added 5-7-1990 by TOR-90-26]

A. Site plans prepared and approved in accordance with this section shall be required to assist the Inspector of Buildings in the review of certain applications for building permits and to assure compliance with all applicable requirements of this chapter.

B. A site plan shall be required and shall be submitted in each of the following situations:

(1) Any proposed residential, business, industrial, institutional or other use of a new or renovated structure or of a parcel of land, or any change in any such use, structure or parcel, except for one-family detached dwellings and duplexes on separate lots.

(2) Any nonresidential use of a one-family dwelling.

(3) Any use requiring a special permit from the Board of Appeals.

(4) Any major change in any condition or feature which is not in conformance with any feature of a previously approved site plan. Changes to parking and/or curb cuts will always necessitate site plan review.

C. Procedure.

(1) An applicant for site plan review under this section shall file with the Building Department ten (10) copies each of an application and a site plan. The site plan shall be prepared by an engineer, architect or landscape architect unless otherwise specified by the Planning Board.

(2) The Inspector of Buildings shall, within five (5) days of receipt, transmit to the Planning Board ten (10) copies of the application and site plan.

(3) All site plans shall be prepared to scale on standard sheets of twenty-four by thirty-six (24 x 36) inches to show with reasonable accuracy the following information, in addition to that required in § 180-4:

(a) A title block, containing the street address, applicant's name and address, date, scale and the name of the preparer of the plan.

(b) A site layout at a scale of no smaller than one (1) inch equals fifty (50) feet.

(c) Topography of the site and adjacent lands.

(d) Provision for the handling of vehicular traffic flow. All curb cuts must be clearly defined with widths and radii noted on the plan. Radii shall meet town standards. Parking lot and site traffic flow must be clearly noted with signs or other methods if it is to be maintained as one-way.

(e) Parking areas and loading areas.

(f) Drainage. The plan must be submitted to the Department of Public Works for input prior to Planning Board review.

(g) All public utilities (sewer, water, gas, electric).

(h) Landscaping. All landscaped areas are to be designated on the plan. These areas are to specify species type and size.

(i) Sign location only.

(j) Exterior lighting.

(k) Rendering or elevations, including all mechanical facility support items originating from or terminating on the building exterior, or both.

(l) The location and characteristics of any proposed screening, fencing or other buffers.

(m) The location of any wetlands, streams, drainage swales and areas subject to flooding.

(4) Within twenty-one (21) days of receipt, the Planning Board shall hold a public meeting. The Planning Board shall within thirty-five (35) days of receipt approve the site plan, approve it with modifications or return it for changes or additional information. When changes have been made or additional information provided, the above-specified time limits will apply. The Planning Board can in certain cases extend the review period if done so in writing and for good reason; however, the review period shall not exceed ninety (90) days. A report containing the findings of the Board shall be submitted to the Inspector of Buildings for consideration in issuing a building permit.

(5) Any application for a building permit requiring site plan approval shall not be deemed complete until such site plan is submitted.

(6) Any decision pursuant to a site plan review shall be subject to the right of appeal to the Board of Appeals.

§ 180-14. Changes in Building Zone Map.

No zone as indicated on the Building Zone Map which is a part of this chapter shall be changed until after the Planning Board has held a public hearing thereon after due notice given and has submitted a final report with the recommendations to the town.

§ 180-15. Enforcement.

The Inspector of Buildings shall enforce the provision of this chapter or any amendment thereof. He shall refuse to grant a permit for the construction, addition, alteration or change of use of any building, structure or premises if such proposed construction, addition, alteration or change of use would be in

Appendix 5B

Year 1

Town of Agawam - Code

Existing Ordinances

Subdivision Regulations

§ 159-7. Definitive plan.

A. Timing.

(1) No person shall submit a definitive plan of a subdivision to the Planning Board for approval unless a preliminary plan has been approved by the Board. The definitive plan shall not vary substantially from the approved preliminary plan.

(2) The definitive plan shall conform to the applicable Zoning Ordinance.

B. Method of submission.

(1) An application for approval of a definitive plan shall be submitted within fourteen (14) days prior to the second regular meeting of the Board for the month.

(2) The application shall be placed on the agenda for submission review on the second regular meeting of the month. If the application is deemed incomplete, the applicant will be notified by certified mail that the plans will not be further reviewed and that after the required public hearing the Board, by vote, may reject the plans due to improper submission.

(3) If, prior to the public hearing, the applicant completes the application, the amended submission shall be accompanied by a request for an appropriate extension of time.

(4) The applicant shall file by delivery or registered mail a notice with the Town Clerk stating the date of application for such approval and accompanied by a copy of the complete application (Form C).[7]

(5) A filing fee of one hundred fifty dollars ($150.) plus sixty dollars ($60.) per acre or any part thereof shall accompany the application. Payment shall be by check payable to the Town of Agawam.

(6) Land which is to be secured by conservation easement or deeded to the town as public open space and is so indicated on the plan shall not be subject to the acreage filing fee.

[7] Editor's Note: Form C is on file in the Planning Department offices.

C. Contents of application. Submission of a definitive plan application shall include the following:

(1) A statement of interest in the land by the applicant.[8]

(2) An attested copy of the deed of the property.

(3) An updated environmental study (reference to previous study and to include any changes which have occurred in the time interval).

(4) Final plans and specifications as required:

(a) A title sheet showing the index to drawings and a location map at a scale of one (1) inch equals one thousand two hundred (1,200) feet.

(b) A lot survey with road layout and lot lines suitable for filing with the Registry of Deeds. See Subsection G(2). Roadway layout, roadway center line and property lines shall be tied into the Agawam Coordinate System. Coordinate traverse point locations can be obtained from the Engineering Division. After the definitive plan is approved, coordinates of roadway layout and center line data as well as property line data shall be furnished to the City Engineer in digitized or hard copy form as specified by the City Engineer. **[Amended 3-21-1991]**

(c) A topographic sheet with existing and finished contours at two-foot intervals; spot elevations as needed. Contour lines shall extend at a minimum thirty (30) feet beyond the property lines. Center lines of roads with stations and elevations shall be shown. Where septic tanks and leach fields are being used, areas of leach fields shall be shown by spot elevations. The general location of proposed buildings shall also appear on this plan, and the finished grade of land at the four corners.

(d) Road layouts and profiles, including those of all utilities. (See Article IV.) Curb cuts and driveways within the street line shall be shown.

(e) Detail sheets as needed.

[8] Editor's Note: The Statement of Interest is on file in the Planning Department offices.

(5) A statement of the time-development sequence.

(6) A plan showing the sequence of development. All bonding must conform to these divisions.

(7) A town-development relationship study, for information purposes only:

(a) The impact on utilities and services which will be required to service the development.

(b) The tentative sale price of houses, type of housing and square footage of finished living space per unit.

(8) A report of test borings and soil samples, water table tests and soil absorption tests (percolation tests):

(a) Borings and soil samples. Borings and soil tests shall be made by a reputable soil testing firm approved by the Town Engineer. Borings shall be made in general every two hundred fifty (250) feet along the center line of each roadway or closer if required by the Town Engineer and in easements at the discretion of the Town Engineer. The borings shall extend to a depth of one (1) foot below the deepest utility. The borings should be shown on the profiles of the construction plans and should indicate the type of soil and the depths at which they are encountered, the standard penetration resistance (N) of each type of soil and the elevation of the water table. In addition, soil samples shall be taken at the street borings of the material which will form the subgrade of the proposed roadways. A sieve analysis shall be made of these samples with the percent passing the one-half-inch, No. 4, No. 10, No. 40 and No. 200 sieves being reported. Also, the liquid limit, plasticity index and group index of the samples shall be determined and reported. The developer may provide test pit logs from backhoe-dug test pits at the above-described locations. These test pits will be provided at the developer's option and will not necessarily relieve him of the requirements for penetration tests and samples noted above.

(b) Soil absorbency tests and water table observation tests.

[1] All percolation tests (soil absorbency tests) shall be made at the final location and elevation of the proposed leaching field and wherever else determined by the Town Engineer. All tests will only be performed during the period of April 1 to June 15, provided that all frost is out of the ground. Soil with a percolation rate of over fifteen (15) minutes per inch shall not be suitable for septic tanks and leach fields. Soil with a percolation rate of over one (1) minute per inch shall be unsuitable for subsurface leaching fields and street drains. A groundwater observation hole a minimum of seven (7) feet in depth must be measured from the elevation of the property after finished grading. All tests must be made in the presence of the Town Engineer or his agent. Where the test is to be made in filled ground for sanitary sewerage disposal purposes, the fill must be in place at least six (6) months prior to the date on which the test is made. Tests made under this section may be utilized by the Board of Health, provided that any additional requirements of that Board have been complied with.

[2] Plans shall be presented in two (2) sets of original or reproducible drawings and five (5) sets of copies. All other documents shall be presented in three (3) copies. One (1) set of original plans and one (1) copy of other documents will be returned to the applicant as endorsed.

D. Preparation of definitive plan. The definitive plan shall be prepared by an engineer and/or surveyor and shall be clearly and legibly drawn in black India ink upon Mylar. The plan shall be at a scale of one (1) inch equals forty (40) feet or such other scale as the Board may accept to show true bearings, curve data and accurate dimensions. Sheet sizes shall not exceed twenty-four by thirty-six (24 x 36) inches. The definitive plan shall contain the following information:

(1) The subdivision name, boundaries, North point, date and scale.

(2) The name and address of the record owner, subdivider and engineer or surveyor who shall indicate by stamp registration in the Commonwealth of Massachusetts.

(3) The names of all abutters as they appear on the most recent tax list.

(4) The existing and proposed lines of streets, ways, lots, easements and public or common areas within the subdivision. (The proposed names of proposed streets shall be shown in pencil until they have been approved by the Board.) Contents of titles, covenants and easements shall be reproduced in full either on the plan or appended thereto.

(5) Sufficient data to determine the location, direction and length of every street and way line, lot line and boundary line and to establish these lines on the ground.

(6) The locations of all permanent monuments properly identified as to whether existing or proposed.

(7) The locations, names and present widths of streets bounding, approaching or within reasonable proximity of the subdivision.

(8) Suitable space to record the action of the Board and the signatures of the members of the Board (or officially authorized person). The block shall be three and five-tenths by seven (3.5 x 7) inches, minimum.

(9) Existing and proposed topography at two-foot contour intervals as required by the Board.

(10) Profiles on the center lines of proposed streets at a horizontal scale of one (1) inch equals forty (40) feet and vertical scale of one (1) inch equals four (4) feet, or such other scales acceptable to the Board. All elevations shall refer to the town datum. A minimum of one (1) bench mark shall be provided based upon town (United States Geological Survey, National Geodetic Vertical Datum) datum.

(11) The proposed layout of storm drainage, public water supply and public sewage disposal systems. If wells and/or septic tanks and leach fields are intended to be utilized, these shall be shown by general indication of location with spot elevations on the finished grading sheet. The Board of Health reserves the right to make final determination concerning location and specifications of private water and sewage systems.

Department of Public Works and approved by the Planning Board.

I. Notification of completion. Upon completion of the subdivision, the applicant shall notify the Planning Board that the subdivision is ready for final inspection with respect to the removal of the bond.

J. Documents for acceptance of street by Council.

(1) Upon completion of the subdivision, the applicant shall provide the town with an as-built plan suitable for presenting to the Town Council for acceptance of the street. Remaining securities held by the town will not be released until an as-built plan has been certified by the Board as completed for submission to the Council.

(2) The applicant shall provide the town with a standard hold-harmless agreement regarding any claims created by virtue of any actions taken by the developer and a statement from the applicant that he gives up the right to any claims he may hold within the development.

ARTICLE IV
Design Standards

§ 159-8. Streets.

A. Location and alignment.

(1) All streets in the subdivision shall be designed so that, in the opinion of the Board, they will provide safe vehicular travel and discourage nonterminal traffic and excessive speed. Due consideration shall also be given by the subdivider to the attractiveness of the street layout in order to obtain the maximum livability and amenity of the subdivision.

(2) The proposed streets shall conform to the master or study plan when adopted in whole or in part by the Board.

(3) Provision satisfactory to the Board shall be made for the proper projection of streets, or for access to adjoining property which is not yet subdivided.

(4) Reserve strips prohibiting access to streets or adjoining property shall not be permitted.

(5) Streets shall be laid out so as to intersect as nearly as possible at right angles. No street shall intersect any other street at less than sixty degrees (60°).

(6) Minimum distance between adjacent parallel streets is three hundred (300) feet at intersections. This provision shall include streets on both sides of the street intersected. There shall be no offsets at intersections with four (4) or more legs. **[Amended 3-21-1991]**

(7) No new streets shall be designed so as to create zoning violations. **[Added 4-5-1990]**

B. Type of streets.

(1) Any proposed street shall be indicated on the plans as being one (1) of the following classes:

(a) Place: These streets shall be not over five hundred (500) feet in length, unless otherwise allowed by the Board, with no allowance for future extension. A maximum average daily traffic (ADT) of one hundred (100) vehicles per day will be allowed for a street to be classified as a place.

(b) Lane: The major purpose of these streets shall be to provide access to lots. They would be streets not subject to nonterminal traffic. The ADT for this type of street would be between one hundred (100) and four hundred (400) vehicles per day.

(c) Subcollector: The ADT for this type of street would be between four hundred (400) and one thousand (1,000) vehicles per day. For the most part this type of street will serve several places or lanes.

(d) Collector: The ADT for this type of street would be between one thousand (1,000) and three thousand (3,000) vehicles per day.

(e) Arterial: The ADT for this type of street would be over three thousand (3,00) vehicles per day.

(2) The ADT of a street shall be determined by applying a factor of ten (10) vehicles per day per lot served either directly or indirectly by the street plus an allowance for through traffic where applicable. The classification of each street in a subdivision and an estimate of its ADT should be included in or with the plans. The Planning Board reserves the right to make the final decision regarding the classification of a street and its estimated ADT. Consideration must be given to future traffic from undeveloped land which would be served by the proposed street system.

C. Design requirements. See Table 4.1.[9]

D. Intersections. The intersection of places and lanes with other streets shall have a property line radius of fifteen (15) feet and a curbline radius of twenty-five (25) feet. The intersections of all other streets shall have a property line radius of twenty-five (25) feet and a curb radius of thirty-five (35) feet. The Planning Board reserves the right to increase these radii wherever it may deem necessary for public safety. Maximum grade allowed within one hundred (100) feet of an intersection, measured from the outer gutter line, is two and five-tenths percent (2.5%). **[Amended 3-21-1991]**

E. Dead-end streets.

(1) Dead-end streets shall not be longer than five hundred (500) feet unless, in the opinion of the Board, a greater length is necessitated by topography or other local conditions.

(2) Dead-end streets shall be provided at the closed end with a turnaround having an outside roadway diameter of at least one hundred (100) feet and a property line diameter of at least one hundred twenty (120) feet.

(3) Minimum gutter grades on culs-de-sac will be one and zero-hundredths percent (1.00%).

§ 159-9. Typical cross section.

A typical cross section can be found in Figure 4.2.[10]

[9] Editor's Note: Table 4.1 is included at the end of this chapter.
[10] Editor's Note: Figure 4.2 is included at the end of this chapter.

§ 159-10. Easements.

A. Easements for proposed or future utilities across lots or centered on rear or side lot lines shall be provided and shall be at least twenty (20) feet wide with provisions made for access thereto.

B. Where a subdivision is traversed by a watercourse, drainageway, channel or stream, a stormwater easement or drainage right-of-way thirty (30) feet in width shall be provided. In addition to providing for construction, maintenance and access, said easements shall contain flowage rights. In the event that a stream is of a seasonal nature or the exact course cannot be determined, then total flowage rights across the land in question shall be provided.

C. When, in the opinion of the Planning Board, pedestrian ways or bicycle paths should be provided to connect with adjacent land, an easement (or deed) shall be granted to the town for such purpose. To the greatest extent possible, pedestrian way easements shall coincide with those of underground utilities.

§ 159-11. Sewerage.

A. Wherever possible, sanitary sewers shall be installed to serve a proposed subdivision. The sewers shall be designed so that the velocity of the flow will be at least two (2) feet per second during periods of peak flow. The sizing of sanitary sewers shall be as specified in the Sanitary Sewer Study for the Town of Agawam, 1972, by Tighe & Bond and/or as approved by the Town Engineer. The total design of the system shall also meet with the approval of the Town Engineer.

B. In areas where sanitary sewers are not presently available but where provisions are made for their future construction in the Sanitary Sewer Study and the town's capital budget program, then a capped sanitary system, including laterals, shall be installed.

C. Sewage pumping stations or lift stations, where necessary and allowed, shall meet with the approval of the Town Engineer. In general these stations will only be allowed where called for in the Sanitary Sewer Study. In some cases stations other than those shown in the study will be allowed if it can be demonstrated that the station will be able to be eliminated by trunk sewer construction in the foreseeable future. The

costs of operating and maintaining a station shall not be assumed by the town until one (1) year from the date of completion of the last house in the last section of the subdivision.

D. The sewer lateral to each lot shall be shown on the plans. During the time the applicant is responsible for the station he shall enter into an agreement with the Town of Agawam relative to its maintenance and operation.

§ 159-12. Drainage.

A. A system of drains shall be installed to collect stormwater from the proposed streets and lots and to transmit the water to a point where it may be discharged in a natural watercourse or stream. The drains shall be designed to have a minimum velocity at design flow of three (3) feet per second and a maximum velocity of ten (10) feet per second. The sizing of storm drains and culverts shall be as specified in the Report on Storm Drainage for the Town of Agawam by Tighe & Bond, 1972, and/or as approved by the Town Engineer.

B. In general, surface water from the lots shall not be deposited directly into the ways. The area within the setback line may be graded to drain toward the street line. All other surface water from individual lots shall be handled insofar as possible within the lots themselves. Developers shall provide for lot surface drainage by a system separate from drainage of the street, by the use of swales, culverts, retention ponds, yard drains and piping, riprapped outlets at the water body, etc., in a manner which shall protect the natural water table unless the lowering of the water table is necessary for the health of the occupants. Strict attention shall be paid to the relationship of leaching fields to surrounding grading. Surface water systems shall not connect into the road drainage system except by permission of the Board, in which case such condition shall be noted on the approved plan. The total design of the system shall also meet with the approval of the Town Engineer.

C. Where, in the opinion of the Town Engineer and/or Planning Board, the discharge of stormwater from a subdivision will alter the character of a watercourse to overflow its banks (confines), then the applicant will be required to submit drainage and flowage easements along said watercourse to a point where it is determined by the Town Engineer

and/or Planning Board that the effect of the stormwater drainage discharge will have a negligible effect on the watercourse. The easements and flowage rights shall be of such width to cover the extent of the suspected flooding. These easements and flowage rights will be required both within and outside of the boundaries of the proposed subdivision. The total design of the system shall also meet with the approval of the Town Engineer.

D. All subdivisions shall be constructed in conformance with the Town Storm Drainage Ordinance.[11] Detention ponds will be utilized as required and each detention pond will be fenced except as otherwise required by the Department of Public Works. Construction standards shall comply with Department of Public Works Standards. No dry wells or leaching fields for the underground disposal of stormwater will be allowed. No stormwater holding ponds without positive surface outlets shall be allowed.

§ 159-13. Water.

A. Water mains and appurtenances such as hydrants, valves, blowoffs and air release valves shall be installed to serve all lots on each street in the subdivision. The sizing of water mains shall be as specified in the Water Distribution Study when completed and/or as required by the Town Engineer. In general the minimum size water main that will be allowed is an eight-inch-diameter line.

B. Hydrants shall be installed to provide fire protection to the subdivision. The maximum distance allowed between hydrants is five hundred (500) feet. Wherever possible, hydrants should be located at lot lines.

C. All intersections of water mains shall be fully valved. Also, main line valves shall be installed every one thousand (1,000) feet along a water main.

D. The water service connection to each lot shall be indicated on the plans. The total design of the system shall also meet with the approval of the Town Engineer.

[11] Editor's Note: See Art. VII of Ch. 175, Water and Sewers.

§ 159-14. Other utilities.

Underground electric and telephone lines and gas mains, including service connections, shall be shown on the plans. The location of streetlighting standards shall be indicated on the plans and the lighting shall be of a type adopted for use in the Town of Agawam. The location and design of streetlighting systems shall meet the requirements of the Department of Public Works. Letters from respective utility companies shall be submitted to the Board indicating their approval of the utility design.

§ 159-15. Open spaces.

Before approval of a plan, the Board may also in proper cases require the plan to show a park or parks suitably located for playground or recreation purposes or for providing light and air. The park or parks shall not be unreasonable in area in relation to the land being subdivided and to the prospective uses of such land. The Board may, by appropriate endorsement on the plan, require that no building be erected upon such park or parks without its approval.

§ 159-16. Protection of natural features.

Strict regard shall be shown for all natural features, such as large trees, watercourses, scenic points, historic spots and similar community assets which, if preserved, will add attractiveness and value to the subdivision.

§ 159-17. Pedestrian ways and bicycle paths.

Provisions for pedestrian and bicycle access shall be made in all subdivisions connecting public open space or commercial areas. When roads do not connect with the adjacent subdivisions or open land, such nonvehicular access shall be provided. The pedestrian/bike path shall be eight (8) feet in paved width with a minimum easement or deeded width of sixteen (16) feet. All ways shall be clearly marked and landscaped to protect adjoining lot owners. Such ways shall be secured by easement or deeded to the town.

ARTICLE V
Construction Standards and Required Improvements

§ 159-18. Preconstruction conference.

Prior to ordering materials or starting any construction, the subdivider together with his contractor and engineer (if applicable) shall arrange for a meeting with the Engineering Division and the City Planner. At this meeting, the rules for conducting construction operations in the subdivision and on city streets will be outlined and discussed. Notices to be given, methods and materials to be employed, how utility connections are to be made, fees required and other operational matters will be discussed.

§ 159-19. Street and roadway.

A. The entire area of each street or way shall be cleared of all stumps, brush, roots, boulders, like material and all trees not intended for preservation.

B. All loam, clay, peat or other yielding material shall be removed beneath all street layouts to a depth specified by the Town Engineer and shall be replaced with a granular material acceptable to the Town Engineer.

C. Whenever it is necessary to install fill to bring a roadway to subgrade, said fill shall be of a granular material satisfactory to the Town Engineer. All fill shall be placed in eight-inch layers compacted to not less than ninety-five percent (95%) of this maximum dry density so specified in the Massachusetts State Department of Public Works Standards. The developer shall be responsible for the costs of all soil testing and analysis required by the Town Engineer.

D. Wherever the borings indicate a groundwater within four (4) feet of the proposed roadway surface or wherever the soil particle size indicates the possibility of a capillary rise of water in the subgrade soil, subdrains shall be installed under both shoulders of the roadway. The design and depth of the subdrain shall meet with the approval of the Town Engineer.

E. Wherever rock, in the opinion of the Town Engineer, is encountered, it shall be excavated to a depth of four (4) feet below the subgrade of the

roadway for the full width of the street layout. The excavated rock shall be replaced with a granular material satisfactory to the Town Engineer.

F. Roadways shall be brought to the subgrade elevation prior to the installation of the water mains, storm drains, sanitary sewer or other utilities. Additional requirements for design of pavement for certain subgrade soils may be necessary.

G. The subgrade of the roadway shall be compacted to a density and by a method approved by the Town Engineer prior to the placing of the subbase or base of the roadway.

H. Subbase.

(1) The material used for a subbase shall be crushed gravel that meets with the approval of the Town Engineer and Massachusetts Department of Public Works Specifications. This material shall conform to AASHTO Soil Classification subgroups A-1-a, A-2-4, A-1-b or A-2-5 and shall have a group index of zero (0), a maximum plasticity index of six (6) and a maximum liquid limit of twenty-five (25). Furthermore, the gravel shall conform to the gradation requirements of Section M 1.02.0 of the Standard Specifications of the Massachusetts Department of Public Works. A tack coat of bitumen at the rate of five-hundredths (0.05) to ten-hundredths (0.10) gallons per square yard shall be applied to the base course of pavement all as determined by the City Engineer. Material and placement shall be as approved. The tack coat shall be only applied to the extent that it can be covered with the surface course within one (1) day. **[Amended 3-21-1991]**

(2) The maximum size aggregate for subbase courses shall not exceed four (4) inches. The cost of any soil tests needed to determine the suitability of a material for use as a subbase shall be borne by the developer.

(3) The gravel shall be spread and compacted in layers not exceeding six (6) inches in depth compacted measurement. The gravel shall be compacted to the density specified in Section 401 of the Standard Specifications of the Massachusetts Department of Public Works.

I. Base. The material used for a base course shall be a processed gravel or broken stone that meets with the approval of the Town Engineer.

This material shall conform to AASHTO Soil Classification subgroup A-1-a or A-2-4 and shall have a group index of zero (0), a maximum plasticity index of three (3) and a maximum liquid limit of twenty-five (25). The gravel shall conform to the gradation requirements of Section M 1.03.1 of the Standard Specifications of the Massachusetts Department of Public Works with a maximum size aggregate of two (2) inches. The crushed stone shall conform to the gradation requirements of Section M 2.01.1 of the Standard Specifications of the Massachusetts Department of Public Works and shall be bound with approved sand or stone screenings. The cost of any soil tests needed to determine the suitability of a material for use as a base course shall be borne by the developer. A tack coat of bitumen at the rate of zero and five hundredths (0.05) to zero and ten hundredths (0.10) gallons per square yard shall be applied to the base course of pavement all as determined by the City Engineer. Material and placement shall be as approved. The tack coat shall be only applied to the extent that it can be covered with the surface course within one (1) day **[Amended 3-21-1991]**

J. Finish course. The material used for the roadway finish course shall be Class I bituminous concrete Type I-1 applied in two (2) courses. The material and work shall conform to Section 460 of the Standard Specifications of the Massachusetts Department of Public Works and shall meet with the approval of the Town Engineer. The top or wearing course of the bituminous concrete shall not be applied until one (1) winter season has passed since the completion of all underground work such as water mains, sewers, drains and all other utilities. The construction of bituminous concrete pavement shall terminate on November 15 and shall not be resumed prior to April 1 unless specifically allowed, in writing, by the Town Engineer. No paving shall be done when the air temperature in the shade is forty degrees Fahrenheit (40° F.) or less nor where the material on which the pavement is to be placed contains frost.

K. Roadway pavement design. Using soil information obtained as required in § 159-7C(8), a pavement design shall be prepared utilizing California bearing ratio values or equivalent values obtained for the subgrade. This will normally be required in clay, loam, peat or silt subgrade materials or as otherwise required by the Town Engineer. The design shall consider and employ, as needed, increased thickness of

the gravel subbase, use of geotextile fabric and/or plastic grids, use of subdrains and other measures necessary. (See also Subsections C and E.) This design shall be included in the definitive plans submitted for review by the Planning Board. See Table 5.1[12] for minimum thickness of the gravel base, subbase and pavement.

L. Bituminous concrete berms shall be installed on both sides of each roadway, except at intersections, using bituminous concrete Type I-1 with asbestos fibers and an approved berm forming machine. All berms shall have a minimum reveal of seven (7) inches and shall be installed on a bituminous concrete base. At driveways, all berms shall be installed so as to return to the sidewalk. At intersections, granite curbing shall be installed along the arc of the curves. The granite curbing shall have a seven-inch reveal and a width at the top of six (6) inches. The curbing shall be set by a method approved by the Town Engineer. **[Amended 4-5-1990]**

§ 159-20. Sanitary sewers.

A. Sanitary sewer mains and laterals shall be polyvinyl chloride pipe conforming to ASTM D 3034-SDR 35. The minimum size for sewer mains shall be eight (8) inches while the minimum size of sewer laterals shall be four (4) inches.

B. All sanitary sewers, sewer force mains and sewer laterals shall be installed in first-class bedding and in accordance with the Department of Public Works Specifications. Sewers shall be installed to the line and grade indicated on the plans.

C. Only precast concrete manholes of a design approved by the Town Engineer shall be installed on a sanitary sewer main. For the most part sanitary sewer manholes shall be installed no further than three hundred (300) feet apart and the sewer shall be laid in a straight line between manholes.

D. Before any sanitary sewer will be accepted by the Board, it must pass an infiltration or exfiltration test, at the discretion of the Town Engineer, made in accordance with the Department of Public Works Specifica-

[12] Editor's Note: Table 5.1 is included at the end of this chapter.

tions. Said test will be made at the developer's expense and shall be made under the direction of the Town Engineer.

E. No groundwater or surface water shall be discharged into the sanitary sewer. No storm drain, foundation or cellar drain or roof leader may be connected to a sanitary sewer or sewer lateral.

F. Where rock is encountered, it shall be removed to a depth of one (1) foot below the flowline of the sewer and the pipe laid in a properly compacted granular material approved by the Town Engineer.

G. Only granular material approved by the Town Engineer shall be used as backfill in any trench excavation.

§ 159-21. Drainage.

A. Storm drains shall be reinforced concrete pipe conforming to ASTM C-76, Class 3 minimum, polyvinyl chloride pipe conforming to ASTM D3034, SDR35 or polyvinyl chloride ASTM F-794. Bedding for various types of storm drains shall be as approved by the Engineer.

B. All storm drains, including catch basin leaders and culverts, shall be installed in first-class bedding. All work and materials shall be in accordance with the Department of Public Works Specifications.

C. Precast concrete or concrete block manholes of a design approved by the Town Engineer shall be used on storm drains. In general the distance between manholes shall not be greater than three hundred (300) feet.

D. Concrete block catch basins in general shall be installed at intervals of three hundred (300) feet on both sides of a roadway and at intersections as necessary. The basins shall have a three-flange frame and grates and a granite curb inlet and shall be of design approved by the Town Engineer.

E. Where rock is encountered, it shall be removed to a depth of one (1) foot below the flowline of the drain and the pipe laid in a properly compacted granular material approved by the Town Engineer.

F. Only granular material approved by the Town Engineer shall be used as backfill in any trench excavation.

G. When warranted by local water table conditions, the Planning Board may require that foundation subdrains be installed by the developer.

§ 159-22. Water.

A. All water mains shall be installed using ductile iron pipe conforming to ANSI A21.51, Class 52, with full thickness cement lining conforming to ANSI A21.4.

B. The hydrants furnished shall meet the town hydrant standards and shall be of a type currently being used by the town.

C. Grate valves shall be of the New York pattern, Metropolitan-type openings to the left, counterclockwise.

D. All materials and work shall be in accordance with the specifications of the Department of Public Works. All water mains shall be installed in first-class bedding.

E. Before any water main will be accepted by the Board, it must pass a pressure and leakage test made in accordance with the Department of Public Works Specifications. Said test will be made at the developer's expense and shall be made under the direction of the Town Engineer. Water mains shall be disinfected and tested for total coliform at the developer's expense. Where the coliform test does not meet state standards, reflushing, disinfecting and retesting will be required at the developer's expense.

F. All water services to the lots shall be installed using Type K copper tubing at least three-fourths (¾) inch in diameter. The service connections shall have a corporation with shutoff at the main and a curb stop at the street line.

G. Where rock is encountered, it shall be removed to a depth of one (1) foot below the flowline of the water mains and connections and the pipe laid in a properly compacted granular material approved by the Town Engineer.

H. Only granular material approved by the Town Engineer shall be used as backfill in any trench excavation.

§ 159-23. Sidewalks, tree belts and pedestrian and bicycle paths.

A. There shall be cement concrete sidewalks constructed on both sides of each street in the subdivision. The width of the sidewalks shall be as specified under the Design Standards for the various classes of streets. The construction must conform to the Town of Agawam Department of Public Works Specifications for Construction of Cement Concrete Sidewalks, April 1989. All materials and construction methods shall be as specified in the Department of Public Works Specifications. **[Amended 4-5-1990]**

B. There shall be tree belts constructed on both sides of each street in the subdivision. The width of the sidewalk shall be as specified under the Design Standards for the various classes of streets. Loam shall be placed to a minimum depth of six (6) inches. Lime, fertilizer and grass seed shall be applied as required in the specifications of the Department of Public Works. The tree belts shall be reworked and reseeded until a stand of grass satisfactory to the Town Engineer has been established.

C. Pedestrian ways and bicycle paths as shown on the plans shall be eight (8) feet wide and constructed according to this section.

§ 159-24. Utilities.

A. Streetlights shall be installed by the power company at the developer's expense, and the developer shall be responsible for the cost of lighting until the street is accepted by the town. The streetlights and standards shall be of the type adopted by the town as a standard installation. The lighting shall be installed on a street prior to occupancy of any house on that street.

B. All underground utilities, such as gas mains and electric and telephone lines, including service connections, shall be installed prior to the construction of the roadway surface, base or subbase. All methods used to install these utilities shall be subject to the approval of the Town Engineer. Only granular material approved by the Town Engineer shall be used as backfill in any utility trench.

§ 159-25. Inspections. [Amended 3-21-1991]

The developer shall notify the Department of Public Works in writing at least forty-eight (48) hours in advance of the time when he plans to begin or resume any work on the improvements required in a subdivision. The Department of Public Works shall assign an inspector to inspect the work. The Town of Agawam shall charge the developer at the rate set by the Department of Public Works as specified in § 159-6H(6) for inspection work in the subdivision. No work shall be accepted by the Board which has not been inspected on a daily basis during its progress. Failure of the developer to notify the Department of Public Works or failure to have the work inspected on a daily basis as it progresses shall be cause for the town to require the developer to excavate and reconstruct or do other things that may be required to ensure that the work has been done in a satisfactory manner. The presence of an inspector shall in no way relieve the developer from full responsibility for the required work.

§ 159-26. Shade trees.

A. Before release of the covenant, the developer shall deposit with the Town of Agawam an amount of money sufficient to cover the replacement of two (2) shade trees per lot according to the specifications of the Planning Board.

B. The developer shall be responsible for providing, planting and maintaining through one (1) full year two (2) living healthy trees or their substitutes per lot. Such trees shall be two and five-tenths (2.5) inches minimum in diameter, balled and burlaped and planted in season and subject to direction of the Tree Warden. Types of trees shall be selected from a list available from the Planning Board which shall include native and hardy species readily available locally.

C. On each lot two (2) shade trees shall be planted within twenty (20) feet of the street line and located so as not to conflict with underground utilities and sight distances. On places at the discretion of the Tree Warden, shade trees may be planted on the tree belt within the street right-of-way.

§ 159-27. Clearing and grading.

To prevent wind and water erosion, the following measures must be employed on all sites:

A. Regions of the site must be developed in separate increments so that the disturbed area is kept to a minimum. At no time is the entire area to be disturbed.

B. Natural vegetation shall be retained and protected whenever possible.

C. All disturbed area shall be stabilized with a temporary vegetative cover if to be left exposed for greater than one (1) month, with the exception of roadways which are to be treated with appropriate measures at the end of each workday.

D. All stockpiled soils shall be stabilized with temporary vegetative cover.

§ 159-28. Loam or topsoil.

No loam or topsoil shall be removed from the property until the subdivision is complete, and then only with the permission of the Board of Appeals as specified in § 180-8G of Chapter 180, Zoning.

§ 159-29. Permits.

Upon receipt of permits from the Inspector of Buildings to construct dwellings, etc., each lot line must be clearly marked and lot identified by lot and street number before any inspections are made. Compliance with the Conservation Commission's regulations must be posted, if applicable.

§ 159-30. Excavations.

All excavations for pipe, etc. across streets and to dwellings shall be properly protected and lighted at proper times, according to recommendations of the Department of Public Works and the Chief of Police. These excavations shall be properly backfilled and well compacted as soon after installation of pipe, etc. as is possible.

§ 159-31. Protection of natural features.

A. In any area outside the road right-of-way and building site [house plus fifteen (15) feet outside walls and leach field area], no tree over eight (8) inches in diameter measured five (5) feet above the ground shall be removed without the consent of the Tree Warden or his agent. Due regard shall be made for life expectancy and health of the vegetation and the final proposed grading. The developer shall notify the Tree Warden at least one (1) week prior to any clearing of the site. No evergreen tree or shrub shall be removed without consent of the Tree Warden or his agent. Limits of work may be delineated on the definitive plan, in which case no work shall be performed, including clearing, outside those limits, but work within may proceed without further consent.

B. All natural features to be preserved shall be suitably protected during construction.

C. A buffer strip not to exceed thirty (30) feet may be required when warranted by drainage or other local conditions. A buffer strip shall be considered part of the lot on which it is located, but shall be protected through a permanent restrictive covenant. The covenant shall be recorded with the definitive plan and proof of recording shall be submitted to the Planning Board. The covenant shall read: "This lot contains a permanently protected buffer strip." No cutting of trees, clearing of brush, digging, filling in with soil or other debris or construction of buildings or other structures shall be allowed in the buffer strip.

§ 159-32. Cleaning up.

Before final inspection, the total area shall be cleared of debris, both natural and construction materials generated by the construction.

§ 159-33. Monuments.

All proposed monuments shown on the definitive plan shall be installed and their installation shall be certified by the developer's engineer or surveyor. Monuments shall be of stone or cast concrete, four (4) inches square and three

(3) feet long, set flush with the finished grade. Three-fourths-inch to one-inch steel pipes or gun barrels three (3) feet long may be used at lot corners. Where street monuments and lot corners occupy the same point, stone or concrete monuments shall be used.

§ 159-34. Street acceptance.

Upon completion of any subdivision or any street therein and prior to the final release of a bond or covenant, the developer shall submit to the Board a final plan of each street layout, including lot frontage, bounds and pins which have been set and ties to intersecting street layouts. This plan shall be used as a street acceptance plan and shall be drawn in accordance with standards set by the Town Engineer. The plan shall be prepared by a registered professional land surveyor and shall be suitable for recording in the Hampden County Registry of Deeds. Accompanying this plan, the developer shall supply the Board with a document releasing the town from any damages which he may incur by the acceptance of the street by the town.

ARTICLE VI
Administration

§ 159-35. Waiver of regulations.

Strict compliance with the requirements of these rules and regulations may be waived when, in the judgment of the Board, such action is in the public interest and not inconsistent with the Subdivision Control Law.[13]

§ 159-36. Matters not covered by regulations.

For matters not covered by these rules and regulations, reference is made to MGL C. 41, § 81-K to 81-GG, inclusive, and the Federal Environmental Protection Act and the Massachusetts Protection Act.

[13] Editor's Note: See MGL C. 41, § 81K through 81GG, inclusive.

ARTICLE VII
Floodplains

§ 159-37. Rules and regulations.

The Planning Board herewith stipulates rules and regulations for the subdivision and/or development of land which lies within the floodplain as described in the Town Ordinance.[14]

§ 159-38. Authority; priority of regulations.

Authority for these regulations is derived from the commitment of the Town of Agawam to the Federal Insurance Administrator under the Federal Flood Insurance Act. These rules and regulations shall take priority over any conflicting regulations of the Planning Board.

A. The finished grade of land at all sides of any major building shall be set at a minimum grade above flood level as determined by the Planning Board from historic flood data.

B. The total area may not be removed from the floodplain or graded in such a way as to cause additional hazard to the remainder of the floodplain areas. No more than one-third (1/3) of the total area may be regraded or filled.

C. More than one (1) exit from the total area shall be provided for emergency evacuations by clearing and suitable grading and related work, and no obstructions to vehicular passage shall be allowed within the exit route. This exit may not require paving or other surfacing. The developer shall so note any deeds concerning obstructions to passage.

D. Utilities. Town sewer systems shall be constructed to the specifications of the Department of Public Works and Board of Health to ensure safety from flooding. All water lines, gas and electric lines shall be constructed with suitable area master shutoff valves. All aboveground utility control boxes shall be constructed to avoid flood damage and to elevations as determined by the Planning Board. Electric and telephone lines shall be underground and all access to underground utilities shall be constructed to the specifications of the Department of Public Works. Any drainage pipes opening into the floodway (river or stream) shall be

[14] Editor's Note: See Art. XII of Ch. 180, Zoning.

constructed to the specifications of the Department of Public Works to prevent flooding of the system.

E. All plans reviewed by this Board which lie in the floodplain shall be stamped or legally noted so that landowners and future occupants shall be aware of their responsibilities. The notation shall be endorsed on Form A, Subdivision Control Not Required, as well as Form B, Subdivision Control, preliminary and definitive plans.[15]

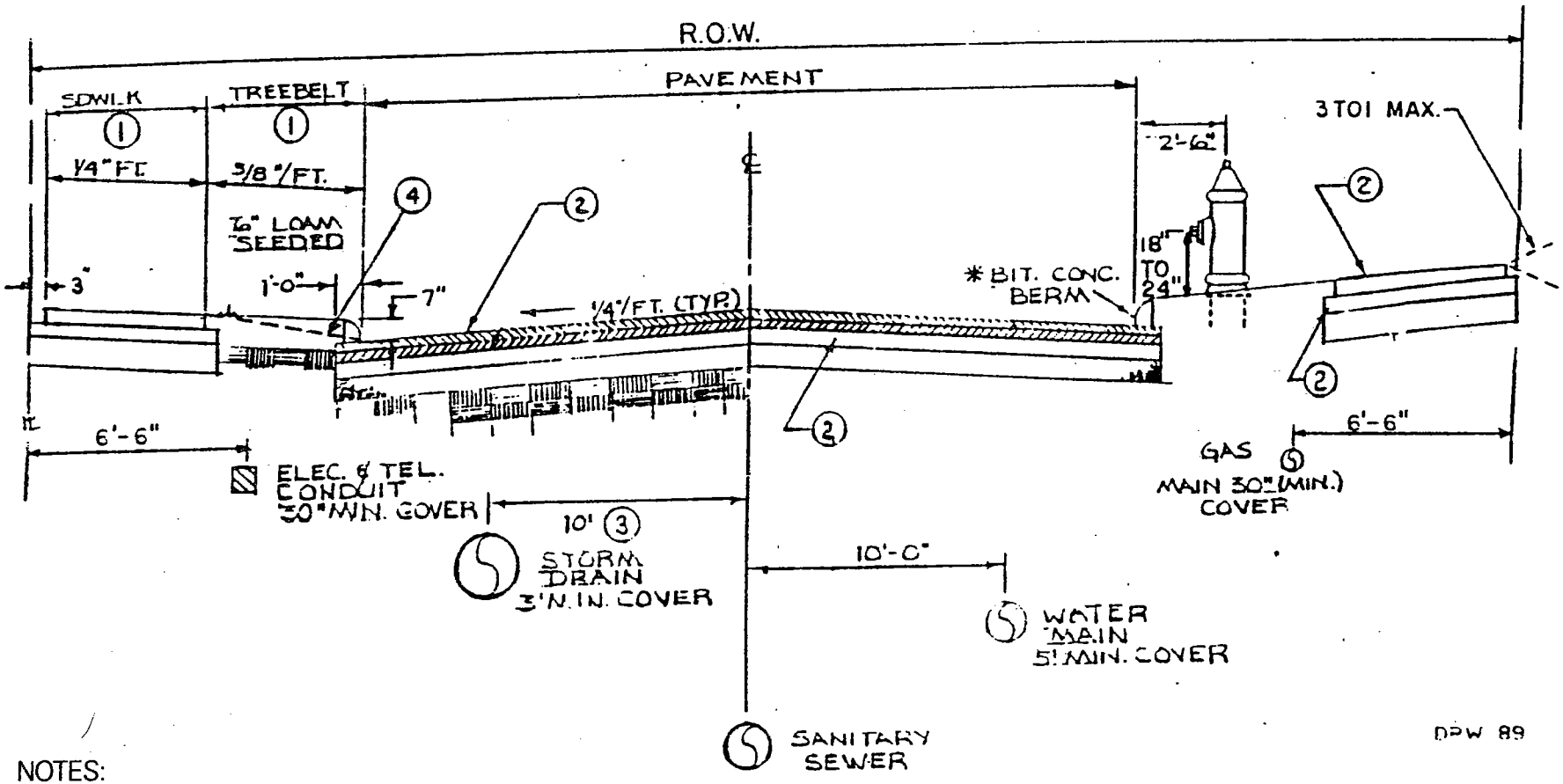
[15] Editor's Note: Forms A and B are on file in the Planning Department offices.

Table 4.1
Town of Agawam
Street Design Standards

Average Daily Traffic (number of vehicles)	Type of Street	Right-of-Way Width (feet)	Pavement Width (feet)	Minimum Radius of Curvature (feet)	Maximum Grade[1] (percent)	Sidewalk Width (feet)	Tree Belt Width (feet)	Minimum Length Vertical Curve	Design Speed (mph)	Stopping Distance (feet)
0-100	Place	46	26	150	10	5	5	Based on safe stopping, sight distances and satisfactory curb drainage	20	110
101-400	Lane	50	30	225	8	5	5		25	150
401-1000	Subcollector	60	36	300	6	5	7		30	200
1001-3000	Collector	66	40	400	5	5	8		35	250
3001+	Arterial	To be determined by Planning Board on an individual basis.								

NOTE:
[1] Minimum grades on all streets shall be five-tenths percent (0.5%).

Figure 4.2
Town of Agawam
Typical Road Section



NOTES:

(1) Width variable, see street design standards.
(2) See Table 5.1 for roadway structure design.
(3) Distance = 8' 0" for place.
(4) See standard drives detail.

TOWN CLERK OFFICE
AGAWAM, MASS
'01 MAR 19 AM 11:05

Amend Section 159-8 E Dead-end Streets to read as follows:

E. Dead-end streets.

(1) Dead-end streets for the purpose of these regulations is a street, meeting the design criteria for either a place, lane, subcollector, collector, or arterial which has only one means of access/egress.

(2) Dead-end streets shall not be longer than five hundred (500) feet measured from the nearest intersecting through street unless, in the opinion of the Board, a greater length is necessitated by topography or other local conditions.

(3) In order for a street not to be considered a dead-end street, there shall be at least two means of egress on to through streets. The two means of access/egress shall be separated by the distance of at least three hundred (300) feet.

(4) Dead-end streets shall be provided at the closed end with a turnaround having an outside roadway diameter of at least one hundred (100) feet and a property line diameter of at least one hundred twenty (120) feet.

(5) Minimum gutter grades on cul-de-sacs will be one and zero-hundredths percent (1.00%).

STEP 1. LOT GRADING PLAN APPROVAL

DPW Engineering approval is required before the white form will be forwarded to the Building Department.

The following information, at a minimum, will be required for each **Lot Grading Plan** submittal.

_____ Location (Street Address)_____

_____ Owner's Name _____

_____ Lot number

_____ Scale, North arrow, and revision date

_____ Note indicating local bench location and elevation used

_____ Professional engineer/licensed surveyor stamp and signature

_____ Layout and location of building foundation

_____ Locations and spot grades (as needed) of all proposed yard drains, swales, retaining walls, sewer cleanouts, septic systems, wetland resources, streams, easements, buffers, tree line, existing/proposed pipes, manholes, or other structures found on lot.

_____ Maximum lawn grades of 3:1

_____ Water service location (5 ft min. cover)

_____ Sanitary service location (4 ft min. cover)

_____ Note specifying the minimum cover requirements for the services must be included,
" Sanitary service must have 4 ft. cover minimum.
Water service must have 5 ft. cover minimum."

_____ Existing and proposed 2 ft contours within the lot

_____ Existing 2 ft contours at least 20 feet into adjacent lots within subdivision. Any previously approved grading plans on nearby lots must be taken into consideration.

_____ Existing 2 ft. contours at least 50 feet into adjacent lots outside of subdivision.

_____ Note indicating the tie-in or direction of roof drains

_____ Elevation of the top of the foundation wall, at all levels as needed - garage etc.

_____ Spot elevations of proposed finished grade at the corners of the building foundation

_____ Spot elevations throughout the lot / at all property lines (every 50 ft.), including back of proposed sidewalk elevations.

_____ Spot elevation of gutter at the driveway centerline

If field conditions require a change from the approved plan during construction, the engineer/surveyor shall submit a revised lot grading plan to Engineering for approval, before changes are implemented.

STEP 2. OWNER and BUILDER SIGN-OFF LETTER

Submit to DPW within one week of DPW approval of Lot Grading Plan

Required submission to DPW Engineering before the white form will be forwarded to the Building Department. Once the grading plan is approved by DPW Engineering, the lot OWNER AND BUILDER BOTH must submit a letter to DPW Engineering acknowledging the information shown on the approved grading plan and agreeing that the lot will be graded and the elevation of the foundation will be built according to its details. A copy of the approved **Lot Grading Plan** must be attached to the **Owner and Builder Sign-Off Letter**.

IMPORTANT: Failure of the builder to follow the approved Lot Grading Plan may result in alterations being required to the building, the site, and possibly including the alteration of the foundation walls, in order to comply with the approved grading plan.

Sample Owner and Builder Sign-Off Letter: All pertinent information shown in this sample letter must be included in the submittal to DPW.

To: Agawam DPW Engineering
Town Hall, 36 Main St.
Agawam, MA 01001

Date: _____

I, _____ the ***owner*** of Lot _____, #_____ Street Name and within the _____ Subdivision, and I, _____ the ***builder*** of the home at this location have reviewed the approved lot grading plan. We understand the information that is shown on the attached plan _____ Revision Date. We agree to comply with the information specified within the lot grading plan. If any significant alterations are wanted, we will have the engineer/surveyor submit a revised lot grading plan to Agawam DPW Engineering for approval. *The builder **must not** begin the construction of any changes until a new approval has been received from Agawam DPW Engineering.*

The Town of Agawam will not be held responsible, by the owner or builder, for any costs incurred in order to comply with the Lot Grading Plan approval process or to reconstruct any structures in order to comply with the approved Lot Grading Plan. (Attach a copy of the approved Lot Grading Plan.)

Sincerely,

_____, owner _____, builder
Lot _____, _____St.
Attachment: Lot ___ Approved Grading Plan - Revision Date _____

STEP 3. DPW Elevation Field Check

Scheduling a field check by DPW

Call 786-0400 x275 or x278 to schedule a field check of the top of wall elevation. Field checks will be performed by DPW within 48 hours of notification, Monday thru Friday 8:30am to 4:30pm excluding weekends and holidays.

When scheduling this field check please give the following information to DPW Engineering:

Where is the location? Subdivision _____ Lot # _____

When will the site be ready for the top of wall elevation check? Day _____ Time _____

Who should DPW contact with the information on compliance with the lot grading plan?
Contact Name _____ Phone Number _____

The top of wall elevation must come *within one foot* of the approved top of wall elevation as shown on the approved Lot Grading Plan.

Compliance with approved Lot Grading Plan

If the top of foundation wall is not within one foot of the approved top of wall elevation, DPW will inform the Planning Board, who will request the Building Department to issue a Stop Work Order for construction on the lot until the issue is resolved.

The following will be given to the contractor (if on-site) at the time of the DPW field check of the top of wall elevation.

Building Foundation Elevation Field Check Contact Name _____
Phone Number _____

Scheduled Time: _____

Office Information

Date _____

Lot # _____ Address _____

Approved Grading Plan Top of Wall Elevation _____
by _____

Field Data

Bench Description _____ Bench elevation _____

Foundation Elevation Measurement Location _____
_____
_____

Foundation Elevation Measurement _____

Field Sketch (optional)

Measurements Taken by _____

This field check information is for the contractor's use to assist with compliance of the approved lot grading plan. This field check does not imply approval by Agawam DPW of the construction of the foundation. It is the contractor's responsibility to comply with the approved lot grading plan regardless of the presence of a DPW inspector on site or information given during the field check. This DPW field check does not take the place of any Building Dept. requirements or inspections.

IMPORTANT: Failure of the builder to follow the approved Lot Grading Plan may result in alterations being required to the building, the site, and possibly including the alteration of the foundation walls, in order to comply with the approved grading plan.

S:/PW/town code changes/lot grading plan/memos/grading plan procedures three steps RV March 1 04.wpd

AMENDMENT TO SUBDIVISION RULES AND REGULATIONS
AGAWAM PLANNING BOARD

To the end of Section 159-31C of the Rules and Regulations, add the following:

The boundary of the buffer shall be clearly marked prior to any construction or grading on the lot by wood stakes at least three feet long (at least the top six inches marked with day-glow paint or tape). The maximum spacing between these stakes shall be twenty-five (25) feet.

Town Code Revisions

Subdivision of Land
Chapter 159

Article V

PRESENT - Section 159-7C(4)(b) reads:

"A lot survey with road layout and lot lines suitable for filing with the Registry of Deeds. See Subsection G(2). Roadway layout, roadway center line and property lines shall be tied into the Agawam Coordinate System. Coordinate traverse point locations can be obtained from the Engineering Division. After the definitive plan is approved, coordinates of roadway layout and center line data as well as property line data shall be furnished to the City Engineer in digitized or hard copy form as specified by the City Engineer. (Amended 3-21-91)"

Change Section 159-7C(4)(b) to read:

"A lot survey with road layout and lot lines suitable for filing with the Registry of Deeds. See Subsection G(2). Roadway layout, roadway centerline, and property lines shall be tied into the Agawam Coordinate System. Coordinate traverse point locations can be obtained from the Engineering Division. After the Definitive Plan is approved, ***the applicant shall provide the Engineering Division with a computer disk containing the following:***

Coordinates of roadway layout and centerline data, property line data, and all plan and profile drawings. The computer disk shall be supplied in an AutoCAD or DXF format, unless otherwise specified by the City Engineer."

PRESENT - Section 159-7H(3) reads:

"Extension of time. If the time schedule is altered, notice must be given to the Planning Board which, at its discretion, may extend the time of completion, provided that any securities then held by the town must be reviewed and increased as necessary to cover any increased cost of improvements."

Change Section 159-7H(3), add to end of existing paragraph:

"As part of the increased costs, the cost increment due to inflation of construction costs shall be added to the bond or cash security posted by the applicant. The Engineering News Record Construction Cost or similar index most accurately reflecting Agawam's liability, as determined by the City Engineer, will be used to arrive at the increased construction cost."

PRESENT - Title of Section 159-18 reads:

"Preconstruction Conference"

Change to:

"Agawam Department of Public Works Construction Standards and PreConstruction Conference."

PRESENT - Section 159-18 reads:

"Prior to ordering materials or starting any construction, the subdivider together with his contractor and engineer (if applicable) shall arrange for a meeting with the Engineering Division and the City Planner. At this meeting, the rules for conducting construction operations in the subdivision and on city streets will be outlined and discussed. Notices to be given, methods and materials to be employed, how utility connections are to be made, fees required and other operational matters will be discussed."

Change to:

"A. The Town of Agawam Department of Public Works Construction Standards, as amended from time to time, shall apply to all subdivisions and are hereby incorporated herein by reference. The Town of Agawam Department of Public Works Construction Standards are on file and may be viewed at the offices of the Agawam City Clerk, Department of Public Works and Planning Department.

B. Prior to ordering materials or starting any construction, the subdivider together with his contractor and engineer (if applicable) shall arrange for a meeting with the Engineering Division and the City Planner. At this meeting, the rules for conducting construction operations in the subdivision and on city streets will be outlined and discussed. Notices to be given, methods and materials to be employed, how utility connections are to be made, fees required and other operational matters will be discussed."

PRESENT - Section 159-19C, second sentence reads:

" All fill shall be placed in eight-inch layers compacted to not less than ninety-five percent (95%) of this maximum dry density so specified in the Massachusetts State Department of Public Works Standards."

change to:

"All fill shall be placed in eight-inch layers compacted to not less than ninety-five (95%) percent of the maximum dry density, as specified in Section 150.62 of the Commonwealth of Massachusetts Department of Highways Standard Specifications for Highways and Bridges (MHD Specifications), as amended."

delete last sentence:

"The developer shall be responsible for the costs of all soil testing and analysis required by the Town Engineer."

PRESENT - title of Section 159-19H reads:

"Subbase."

change to:

"Gravel Subbase."

PRESENT - Section 159-19H(1), reads:

"The material used for a subbase shall be crushed gravel that meets with the approval of the Town Engineer and Massachusetts Department of Public Works Specifications. This material shall conform to AASHTO Soil Classification subgroups A- 1 -a, A-2-4, A-1 -b or A-2-5 and shall have a group index of zero (0), a maximum plasticity index of six (6) and a maximum liquid limit of twenty-five (25). Furthermore, the gravel shall conform to the gradation requirements of Section M 1.02.0 of the Standard Specifications of the Massachusetts Department of Public Works. A tack coat of bitumen at the rate of five-hundredths (0.05) to ten-hundredths (0.10) gallons per square yard shall be applied to the base course of pavement all as determined by the City Engineer. Material and placement shall be as approved. The tack coat shall be only applied to the extent that it can be covered with the surface course within one (1) day. (Amended 3-21-1991)"

change to:

"The material used for the gravel subbase shall be gravel approved by the City Engineer, which meets the Commonwealth of Massachusetts Department of Highways Standard Specifications for Highways and Bridges (MHD Specifications), as amended, material specification M 1.03.0 type b (3" max. size) and conform to construction methods stipulated in section 401.60, except that all courses shall be laid in depths not exceeding 4 inches compacted depth."

PRESENT - Section 159-19H(3), reads:

"The gravel shall be spread and compacted in layers not exceeding six (6) inches in depth compacted measurement. The gravel shall be compacted to the density specified in Section 401 of the Standard Specifications of the Massachusetts Department of Public Works."

change "Standard Specifications of the Massachusetts Department of Public Works" to:

"MHD Specifications."

PRESENT - title of Section 159-19I :

"Base."

change to:

"Gravel Base."

PRESENT - Section 159-19I, reads:

"The material used for a base course shall be a processed gravel or broken stone that meets with the approval of the Town Engineer. This material shall conform to AASHTO Soil Classification subgroup A-1-a or A-2-4 and shall have a group index of zero (0), a maximum plasticity index of three (3) and a maximum liquid limit of twenty-five (25). The gravel shall conform to the gradation requirement of Section M 1.03.1 of the Standard Specifications of the Massachusetts Department of Public Works with a maximum size aggregate of two (2) inches. The crushed stone shall conform to the gradation requirements of Section M 2.01.1of the Standard Specifications of the Massachusetts Department of Public Works and shall be bound with approved sand or stone screenings. The cost of any soil tests needed to determine the suitability of a material for use as a base course shall be borne by the developer. A tack coat of bitumen at the rate of zero and five hundredths (0.05) to zero and ten hundredths (0.10) gallons per square yard shall be applied to the base course of pavement all as determined by the City Engineer. Material and placement shall be as approved. The tack coat shall be only applied to the extent that it can be covered with the surface course within one (1) day. (Amended 3-21-91)"

Change to :

"The material used for gravel base shall be Dense Graded Crushed Stone approved by the City Engineer, which meets MHD Specification M 201.7 for material and is placed in conformance with section 402 for construction. All courses of gravel base shall be laid in depths not exceeding 4 inches compacted depth."

PRESENT - title Section 159-19J reads:

"Finish course."

change to:

"Pavement."

PRESENT Section 159-19J, second sentence reads:

"The material and work shall conform to Section 460 of the Standard Specifications of the Massachusetts Department of Public Works and shall meet with the approval of the Town Engineer."

change to:

"The material and work shall conform to Section 460 of the MHD Specifications and shall meet with the approval of the City Engineer."

PRESENT - Section 159-19J, third sentence reads:

"The top or wearing course of the bituminous concrete shall not be applied until one (1) winter season has passed since the completion of all underground work such as water mains, sewers, drains and all other utilities."

change to:

"The installation of all subsurface utilities within the roadway shall be completed before placement of the first (binder) course. Where there is concern over possible settlement, the City Engineer may require one winter season to elapse between utility installation and top course pavement installation. In no event shall the interval between placement of binder course and top course of pavement exceed two years."

Add to end of Section 159-19J:

"A tack coat of bitumen at the rate of zero and five hundredths (0.05) to zero and ten hundredths (0.10) gallons per square yard shall be applied to the base course of pavement all as determined be the City Engineer. Material and placement shall be as approved. The tack coat shall be only applied to the extent that it can be covered with the surface course within one (1) day."

PRESENT - Section 159-19L reads:

"Bituminous concrete berms shall be installed on both sides of each roadway, except at intersections, using bituminous concrete Type 1-1 with asbestos fibers and an approved berm forming machine. All berms shall have a minimum reveal of seven (7) inches and shall be installed on a bituminous concrete base. At driveways, all berms shall be installed so as to return to the sidewalk. At intersections, granite curbing shall be installed along the arc of the curves. The granite curbing shall have a seven-inch reveal and a width at the top of six (6) inches. The curbing shall be set by a method approved by the Town Engineer. (Amended 4-5-1990)"

Change to:

"Bituminous concrete curbs shall be installed on both sides of each roadway, except at intersections, using bituminous concrete Type I-1 and an approved curb forming machine. All curbs shall have a minimum reveal of six (6) inches and shall be installed on a bituminous base. At driveways, all curbs shall be installed so as to return to the sidewalk. At intersections, Type VB granite curbing shall be installed along the arc of the curves. The granite curbing shall have a six-inch reveal and a width at the top of six (6) inches. The curbing shall be set by a method approved by the City Engineer."

PRESENT - Section 159-21D, reads:

"Concrete block catch basins in general shall be installed at intervals of three hundred (300) feet on both sides of a roadway and at intersections as necessary. The basins shall have a three-flange frame and grates and a granite curb inlet and shall be of design approved by the Town Engineer."

change to:

"Catch basins in general shall be installed at intervals of not more than three hundred (300) feet on both sides of a roadway and at intersections as necessary. The basins shall be of the Connecticut Basin type and shall conform to the Department of Public Works Construction Standards or shall be approved by the City Engineer."

PRESENT - Table 4.1 Town of Agawam Street Design Standards, note at bottom reads:
"Minimum grades on all streets shall be five-tenths percent (0.5%)."

change to:
"Minimum grades on all streets shall be one (1.0%) percent except where such a minimum will adversely affect ride, as determined by the City Engineer, in which case the minimum grade will be five-tenths (0.5%) percent."

PRESENT - Figure 4.2 Town of Agawam Typical Road Section

change to:
New Figure 4.2 Town of Agawam Typical Road Section dated September 25, 1996.

PRESENT - Table 5.1 Town of Agawam Minimum Thickness for Pavement

change to:
New Table 5.1 Town of Agawam Minimum Thickness for Pavement dated September 25, 1996.

Table 5.1
Town of Agawam
Minimum Thickness for Pavement
September 25, 1996

	Bituminous Concrete			Gravel Base and Gravel Subbase	
Type of Street	Surface Course (inches)	Binder Course (inches)	Base (inches)	Base (inches)	Subbase (inches)
Place					
a	1.5	3.0		4	8
b	1.5	3.0		12 processed stone	---
Lane					
a	1.5	3.0		4	8
b	1.5	3.0		12 processed stone	---
Subcollector					
a	1.5	1.5	3.0	4	8
b	1.5	1.5	3.0	12 processed stone	---
Collector					
a	1.5	1.5	4.0	4	10
b	1.5	1.5	4.0	12 processed stone	---

NOTE: The above thicknesses do not apply to industrial park roads.

Table 4.1
Town of Agawam
Street Design Standards
September 25, 1996

Average Daily Traffic (number of vehicles)	Type of Street	Right-of-Way Width (feet)	Pavement Width (feet)	Minimum Radius of Curvature (feet)	Maximum Grade[1] (percent)	Sidewalk Width (feet)	Tree Belt Width (feet)	Minimum Length Vertical Curve	Design Speed (mph)	Stopping Distance (feet)
0-100	Place	46	26	150	10	5	5	Based on safe stopping, sight distances and satisfactory curb drainage	20	110
101-400	Lane	50	30	225	8	5	5		25	150
401-1000	Subcollector	60	36	300	6	5	7		30	200
1001-3000	Collector	66	40	400	5	5	8		35	250
3001+	Arterial	To be determined by Planning Board on an individual basis.								

Note:
[1] Minimum grades on all streets shall be one (1.0%) percent except where such a minimum will adversely affect ride, as determined by the City Engineer, in which case the minimum grade will be five-tenths (0.5%) percent.

Appendix 6A

Year 1

SPCC Plan – Outline

Spot Sanding (Freeze after melting)
3 routs

	A	B	C	D	E	F
1	**STREET**	**Description**	**Priority**	**Length**	**Spot Route**	
2	ADAMS ST.	ENTIRE	2	6200	2	
3	ALBERT ST.	ENTIRE	1	1750	2	
4	ALHAMBRA CIR NO.	ENTIRE	1	1250	2	
5	ALHAMBRA CIR. SO.	ENTIRE	1	1150	2	
6	ANTHONY ST.	ENTIRE	1	1750	2	
7	AUTUMN ST.	ENTIRE	1	1450	2	
8	BIRCH HILL RD.	ENTIRE	1	2100	2	
9	BRIDGE ST.	ENTIRE	2	1750	2	
10	CENTER ST.	ENTIRE	1	850	2	
11	CENTERWOOD DR.	ENTIRE	1	500	2	
12	CHAREST LANE	ENTIRE	1	850	2	
13	CLEMATIS ST.	ENTIRE	1	1250	2	
14	COOPER ST.	SUFFIELD TO MAIN	2	5000	2	
15	COREY ST.	ENTIRE	1	6200	2	
16	EDWARD ST.	ENTIRE	2	1700	2	
17	ELM ST.	ENTIRE	2	3750	2	
18	FAYEMORE DR.	ENTIRE	1	750	2	
19	FEDERAL ST.	ENTIRE STREET	1	1600	2	
20	FERNWOOD DR.	ENTIRE	1	2400	2	
21	HASKELL ST.	Wright to Colonial Haven 422'	1	700	2	
22	HUNTERS GREEN CIR.	ENTIRE	1	1660	2	
23	KANAWHA AVE.	ENTIRE	1	1400	2	
24	LEONARD ST.	ENTIRE	2	4300	2	
25	MALLARD CIR.	ENTIRE	1	2500	2	
26	MAPLE ST.	ENTIRE	2	3750	2	
27	MEADOW ST.	ENTIRE	2	6800	2	
28	MILL ST.	SUFFIELD ST. TO PERRY LANE	2	950	2	
29	PERRY LANE	SILVER TO ELM	1	640	2	
30	PERRY LANE	MILL TO ELM	1	760	2	
31	PRINCE LANE	ENTIRE	1	200	2	
32	QUAIL HOLLOW RD.	ENTIRE	1	950	2	
33	REED ST.	ENTIRE	1	1700	2	
34	RIDGE AVE.	ENTIRE	1	800	2	
35	RIVER RD.	TRAF. CIR. TO RIVER RD.	3	600	2	
36	RIVER ST.	ENTIRE	2	700	2	
37	RIVIERA DR.	ENTIRE	1	2000	2	
38	SCHOOL ST.	ENTIRE	2	7100	2	
39	SILVER ST.	SUFFIELD ST. TO ELM ST.	2	2200	2	
40	SO. PARK TER.	ENTIRE	1	1700	2	
41	SOUTH ST.	ENTIRE	2	5500	2	
42	SPRINGFIELD ST.	ROWLEY TO SUFFIELD	3	3900	2	
43	SUFFIELD ST.	MAIN TO COOPER	3	4150	2	
44	SUFFIELD ST.	SILVER ST. TO SOUTH ST.	3	5200	2	
45	SUFFIELD ST.	SOUTH ST. TO CONN.	3	4200	2	
46	SUFFIELD ST.	RT. 57 TO SILVER ST.	3	5750	2	
47	SUFFIELD ST.	COOPER TO ROUTE 57	3	1400	2	
48	SUNNYSLOPE AVE.	ENTIRE	1	1250	2	
49	VALENTINE ST.	ENTIRE	1	1800	2	
50	WALNUT ST.	ENTIRE	3	4050	2	
51	WALNUT ST. EXT.	ENTIRE	3	1350	2	
52	WASHINGTON AVE.	Ramah to Suffield	1	690	2	122900
53	BEGLEY ST.	ENTIRE	1	900	3	
54	BROOKSIDE DR.	ENTIRE STREET	1	635	3	
55	CAMBRIDGE ST.	ENTIRE (1162') south of Yale	1	2470	3	
56	CHAPIN ST.	ENTIRE STREET	1	900	3	
57	CHERRY ST.	NORTH TO COLEMORE	1	1700	3	
58	CLEVELAND ST.	ENTIRE	1	1200	3	
59	COLEMORE ST.	ENTIRE	2	3700	3	
60	COLUMBIA DR.	ENTIRE	1	1650	3	
61	COLUMBUS ST.	ENTIRE	1	1000	3	
62	COOPER ST.	MILL TO SUFFIELD	2	4650	3	
63	DEPALMA ST.	ENTIRE	1	800	3	
64	EDGEWATER RD.	ENTIRE	1	2400	3	
65	FENTON ST.	ENTIRE	1	500	3	
66	FRANKLIN ST	ENTIRE	2	2450	3	

	A	B	C	D	E	F
67	FRANKLIN ST. EXT.	ENTIRE	1	1150	3	
68	GARDEN ST.	SILVER TO RTE 57 RAMPS	2	3120	3	
69	GARDEN ST.	MEMORIAL TO ON RAMP RTE 57	2	1620	3	
70	GARDEN ST.	POPLAR TO MEMORIAL	2	1160	3	
71	HARDING ST.	ENTIRE	1	800	3	
72	HOMER ST.	ENTIRE	1	1850	3	
73	KRISTEN LANE	SPRINGFIELD ST. NORTHERLY TO CUL DE SAC	1	450	3	
74	LETENDRE AVE.	ENTIRE	1	1700	3	
75	LINE ST.	ENTIRE	2	3250	3	
76	MEMORIAL DR.	ENTIRE	1	1300	3	
77	MILL ST.	RT. 57 TO SUFFIELD ST.	2	3300	3	
78	MILL ST.	RT.57 TO SPRINGFIELD ST.	3	6700	3	
79	MORNINGSIDE CIR.	ENTIRE STREET	1	1200	3	
80	MULBERRY ST.	ENTIRE	1	400	3	
81	NORTH ST.	NO. WESTFIELD TO COLEMORE	2	6500	3	
82	NORTH ST.	COLEMORE TO SPRINGFIELD	2	5500	3	
83	PIERCE ST.	ENTIRE	1	500	3	
84	POPLAR ST.	SHOEMAKER TO GARDEN	2	2000	3	
85	POPLAR ST.	GARDEN TO MILL	2	2100	3	
86	ROWLEY ST.	ENTIRE	2	4850	3	
87	RUSSO CIR.	ENTIRE STREET	1	650	3	
88	SHIBLEY CT.	ENTIRE	1	250	3	
89	SHOEMAKER LANE	SUFFIELD TO POPLAR	2	12400	3	
90	SHOEMAKER LANE	POPLAR TO SOUTH WESTFIELD	2	1650	3	
91	SHOEMAKER LANE	WEST OF SOUTH WESTFIELD	1	350	3	
92	SILVER LAKE DR.	ENTIRE	1	3284	3	
93	SILVER ST.	SUFFIELD ST. TO SHOEMAKER	2	8700	3	
94	SPRINGFIELD ST.	F. H. CENTER TO MILL ST.	3	4200	3	
95	SPRINGFIELD ST.	MILL TO LINE	3	5700	3	
96	SPRINGFIELD ST.	LINE TO ROWLEY	3	3700	3	
97	WILSON ST.	ENTIRE	1	950	3	
98	YALE AVE.	ENTIRE	1	1100	3	117339
99	ANVIL ST.	ENTIRE STREET	1	850	4	
100	BARRY ST.	PINE TO SO. WEST	2	4300	4	
101	BARRY ST.	SO. WEST TO SOUTHWICK	1	3550	4	
102	BARRY ST.	SO. WESTFIELD TO PINE	1	3600	4	
103	BLACKSMITH RD.	ENTIRE	1	700	4	
104	CEDAR KNOLL DR.	JUNIPER RIDGE DR. TO CUL-DE-SAC	1	750	4	
105	CHRISTOPHER LANE	ENTIRE	1	1900	4	
106	CLOVER HILL DR.	FOREST HILL RD TO END	1	450	4	
107	CLOVER HILL DR.	NO WSTFLD TO FOREST HILL	1	2410	4	
108	ELMAR DR.	HICKORY TO PAUL REVERE	1	650	4	
109	ELMAR DR.	HENDOM TO HICKORY	1	1120	4	
110	FOREST HILL RD.	ENTIRE	1	2300	4	
111	FORGE ST.	ENTIRE STREET	1	700	4	
112	FOX FARM RD.	ENTIRE	1	1500	4	
113	HENDOM DR.	ENTIRE	1	3200	4	
114	INDEPENDENCE RD.	ENTIRE	1	2780	4	
115	LISWELL DR.	ENTIRE	1	1500	4	
116	MEYERS DR.	ENTIRE	1	420	4	
117	MICHAEL ST.	ENTIRE	1	650	4	
118	NEW YORK AVE.	ENTIRE	1	400	4	
119	NORTH ST. EXT.	ENTIRE	1	4200	4	
120	NORTH WEST ST.	#548 TO NORTHWESTFIELD ST	2	7500	4	
121	NORTH WEST ST.	SOUTHWICK TO #548	2	6700	4	
122	NORTH WESTFIELD ST.	NORTH ST. TO F. H. CENTER	3	4500	4	
123	NORTH WESTFIELD ST.	NORTH TO PROVIN MT.	3	4600	4	
124	NORTH WESTFIELD ST.	PROVIN MT. TO WESTFIELD	3	6900	4	
125	PARKEDGE DR.	ENTIRE	1	2400	4	
126	PARKVIEW DR.	ENTIRE	1	2400	4	
127	PINE ST.	ENTIRE	2	6100	4	
128	PROVIN MT. DR.	ENTIRE	1	950	4	
129	SO. WEST ST.	ENTIRE	2	11000	4	
130	SOUTH WESTFIELD ST.	F. H. CENTER TO ROUTE 57	3	4800	4	
131	SOUTH WESTFIELD ST.	ROUTE 57 TO PINE	2	1200	4	
132	SOUTH WESTFIELD ST.	PINE TO BARRY	1	6100	4	

	A	B	C	D	E	F
133	SOUTHWICK ST.	NO. WEST TO SOUTHWICK LINE	3	4500	4	
134	SOUTHWICK ST.	NO. WEST ST. TO F. H. CENTER	3	4200	4	
135	STRAWBERRY HILL RD.	ENTIRE	1	1700	4	
136	THALIA DR.	ENTIRE	1	2300	4	
137	TINA LANE	ENTIRE	1	1250	4	
138	VALLEY BROOK RD.	ENTIRE	1	3250	4	
139	WAGON WHEEL DR.	NORTH & SOUTH OF ANVIL ST. TO CUL DE SAC	1	1100	4	
140	WHITE FOX RD.	ENTIRE	1	2150	4	
141	WOODCOCK CRT.	ENTIRE STREET	1	550	4	124080
142				0		